4.0 Donnelly Training Area

Introduction

The U.S. Army Garrison, Alaska (USAG-AK) has proposed four major range development projects, as well as several smaller projects, on lands at Ft. Wainwright's Donnelly Training Area. The major range development projects include a landscape-scale fire mitigation project (firebreak), an Unmanned Aerial Vehicle launch and recovery site (UAV landing strip), a Cold Weather/ Automotive Test Complex (CRTC racetrack), and the Battle Area Complex (BAX). Smaller projects include a gravel source, access roads, stream stabilizations and a bridge replacement. Archaeological surveys of the proposed projects were conducted in May, June, July, August and September of 2003. A total of 105 previously unidentified archaeological sites were recorded.

Table 1. Acreage of proposed range development projects

PROJECTS	TO BE SURVEYED	SURVEYED	COMPLETED	SITES FOUND
UAV Landing Strip	988.4	988.4	100%	6
CRTC Test Track	5930.4	5930.4	100%	16
BAX Footprint Eddy DZ	3459.4	3459.4	100%	0
BAX Firing Fan Eddy DZ	22239	17914.5	81%	70
Firebreak Phase 1	494.2	481.18	98%	1
Firebreak Phase 3 (2005)	2223.9	679.52	28%	8
Other Small Projects	988.4	988.4	100%	0
Additional area surveyed	2841.6	2841.6	100%	4
TOTAL	**39165.3**	**33283.4**		**105**

The landscape-scale fire mitigation project is located to the east of Buffalo Drop Zone and north of Eddy Drop Zone. Nine new archaeological sites were located in the vicinity of the firebreak during the course of survey in 2003. One site was located within the boundaries of Phase 1 of the project. As a result, only hand thinning of vegetation next to the site, and no ground disturbance, occurred. A staff archaeologist monitored the hand thinning activities.

An Unmanned Aerial Vehicle launch and recovery site is located between the Old Richardson Highway and the Delta River, north of Windy Ridge Road and within BAX Area B. No sites were identified within the APE for the UAV Landing Strip. However, six new archaeological sites were located in BAX Area B during the course of survey in 2003. In addition to the six new archaeological sites recorded in this area, two previously recorded sites (XMH-267 and XMH-268) were also relocated.

The Cold Weather/Automotive Test Complex is located in Donnelly Training Area East, between the Richardson Highway and Jarvis Creek. Sixteen new archaeological sites were located in the area of the CRTC test track during the course of survey in 2003. One site was located directly within the proposed CRTC test track construction footprint, and was subsequently evaluated for eligibility for listing in the NRHP, based on criteria outlined in 36 CFR 60.4.

The proposed construction of the Battle Area Complex (BAX) encompassed three different locations, referenced here as Texas Range, Eddy Drop Zone, and Donnelly Drop Zone. Through the process of design planning, Eddy Drop Zone became the preferred alternative for

the location of the BAX project. The majority of Eddy Drop Zone BAX footprint alternative was surveyed in 2002 (Hedman et al. 2003). However, a small portion of the footprint was not. The remainder was surveyed in 2003, no new sites were found.

Seventy new archaeological sites were identified in the Eddy Drop Zone BAX firing fan alternative during the course of survey in 2003. These sites lie inside the boundaries of the three firing fan alternatives for the proposed BAX project, but have not yet been evaluated for their National Register eligibility. However, the sites that fall into the APE of the chosen firing fan will be evaluated to determine eligibility for inclusion in the NRHP.

A description of each survey and evaluation, as appropriate, follows in the sections below.

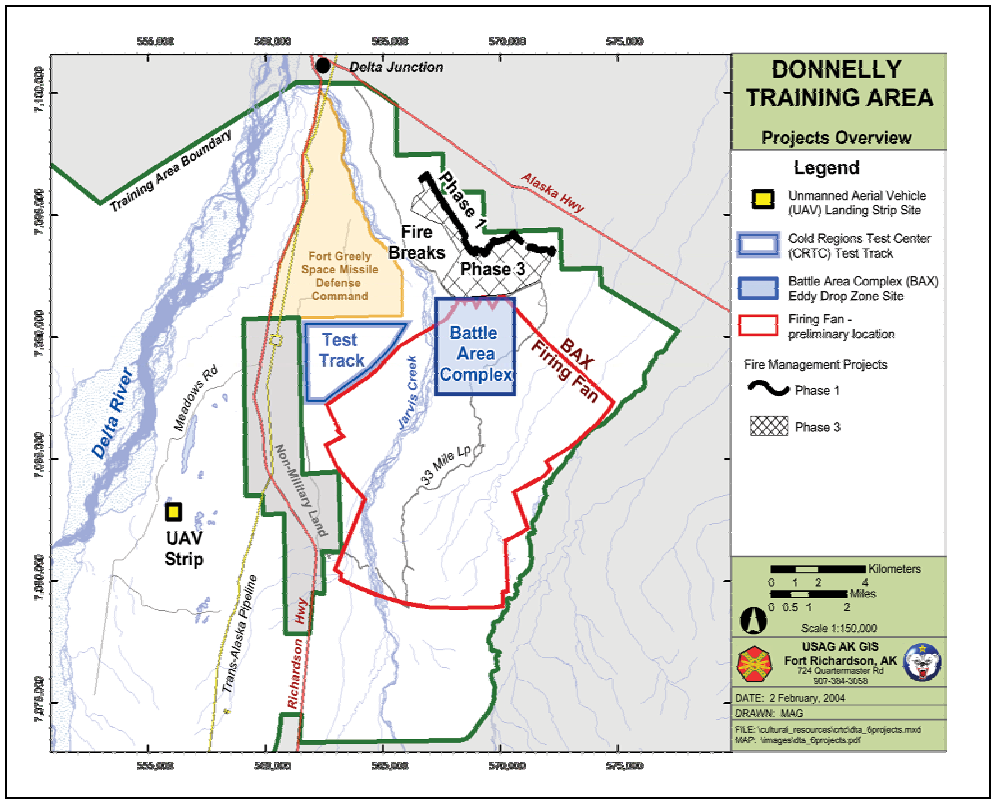

Figure 43. Location of proposed range development projects

4.1 Gravel Source and Access Road

USAG-AK has proposed construction of a gravel source and access road located within Army lands on Ft. Wainwright, Alaska. The project involves the construction of a three-acre gravel source and a 500m long access road at Ft. Wainwright's Donnelly Training Area (Figure 44).

The gravel source will be used for the road upgrades project currently under way on 33 Mile Loop Road. There is currently road access into the area from which the gravel would be extracted; however three archaeological sites (XMH-922, XMH-923 and XMH-924) would be impacted by the traffic of heavy trucks and other construction equipment (Figure 44). As a result, a 500m long access road to connect 33 Mile Loop Road and the gravel source will be built to avoid these three archaeological sites. Additionally, earthen berms will be placed at both ends of the old road to prevent further impacts to the archaeological sites. Twenty feet on either side of the new road may be Hydro-axed to control vegetation.

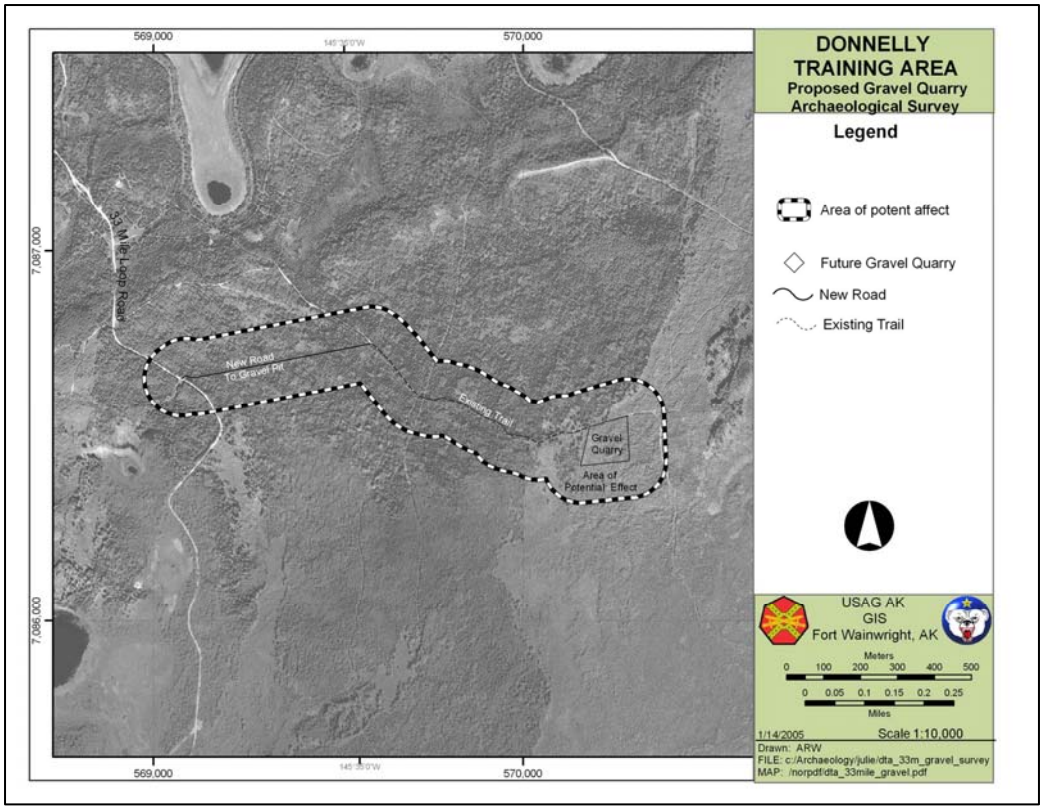

Figure 44. The APE for the gravel source and access road

Survey and Field Methods

In the summers of 2002 and 2003, two archaeological survey crews (each comprised of four archaeologists) employed by CEMML, conducted a pedestrian survey of the proposed gravel source and access road at Ft. Wainwright's Donnelly Training Area.

The project's APE encompassed an area larger than the anticipated construction footprint, in order to ensure coverage of areas that may incur secondary impacts during construction or use. All of the area shown in Figure 44 was surveyed in the summer of 2002 and all the area inside the APE was resurveyed in 2003.

Parallel pedestrian transects spaced at 20m were walked systematically across the APE and surrounding area. Transect survey units were partitioned according to existing roads and trails where possible. When existing roads did not provide for practical unit boundaries, a one square kilometer work unit was defined. Systematic sub-surface shovel testing was undertaken in areas considered to have high probability for containing archaeological sites. Areas that were shovel tested included but were not limited to: landforms affording a view of surrounding terrain, lake margins, ridgelines, terrace edges, hilltops, benches adjacent to steeper slopes, and bluffs. Shovel tests were typically 30cm x 30cm and excavated into glacial till or consolidated outwash. All soil removed was screened through ¼" hardware cloth.

Results
Pedestrian survey of the proposed project area failed to identify any cultural resources within the boundaries of the proposed project's area of potential effect. All previously recorded archaeological sites or historic properties fall outside the proposed project area. Subsequently, the proposed project will have no effect on historic properties.

Cultural Resources
Eight prehistoric sites have been identified within 1km of the proposed project area. To the northwest of the proposed project area, seven sites were recorded during surveys conducted by CEMML in 2002 (Hedman et al. 2003). To the north of the proposed project area, one site (XMH-278) was recorded near an unnamed lake by Bacon and Holmes in 1979.

Following is a description of each recorded site near the currently proposed project area:

XMH-278
Determination: Not evaluated
Site XMH-278 consists of numerous flakes found on the surface of a northeast/southwest trending ridge, about 200m south of a small lake. Nine gray chert flakes, a biface knife or projectile fragment, a biface perform or blank, and a unifacially retouched flake were collected.

Recommendations
Site XMH-278 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies outside the boundaries of the proposed gravel source project and therefore was not evaluated determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-921
Determination: Not evaluated
Site XMH-921 is located at the terminal end of a well-defined glacial moraine ridge extending north/south. A lake is visible to the northeast and is approximately 300m distant. Five late-stage reduction flakes of gray chert were observed on the surface. Subsurface examinations have yet to be conducted

Recommendations
Site XMH-921 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. This site could potentially contain more cultural material. This site lies outside the boundaries of the proposed gravel source project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-922
Determination: Not evaluated
Site XMH-922 is situated on the crest of a relatively narrow east/west trending glacial moraine ridge. The site is approximately 300m south of a lake. Site XMH-923 is approximately 100m west and may be associated. Ten tertiary chert flakes were observed on the surface of a small two-track trail. Subsurface examinations have yet to be conducted.

Recommendations
Site XMH-922 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. This site could potentially contain more cultural material. This site lies outside the boundaries of the proposed gravel source project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-923
Determination: Not evaluated
Site XMH-923 is located on the crest of a narrow east/west trending glacial moraine ridge approximately 300m south of a lake. Site XMH-922 located approximately 100m to the east and may be associated. Two tertiary chert flakes were observed on the surface of a small two-track trail running along the ridge crest. In 2003, two uniface fragments were found at the site in the middle of the trail. These two fragments were collected, but subsurface examinations have yet to be conducted

Recommendations
Site XMH-923 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. This site could potentially contain more cultural material. This site lies outside the boundaries of the proposed gravel source project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-924
Determination: Not evaluated
Site XMH-924 is located on the crest of a narrow east/west trending glacial moraine ridge approximately 300m south of a lake. Site XMH-923 is located along the same ridge and may be associated. One tertiary gray chert flake and a possible notched chert tool were observed on the surface of a small two-track trail running along the ridge crest. Subsurface examinations have yet to be conducted

Recommendations
Site XMH-924 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies outside the boundaries of the proposed gravel source project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-925
Determination: Not evaluated
Site XMH-925 is located on a wind-eroded southeast facing hilltop 100m southeast of a lake. One dark gray chert flake and one fine-grained black basalt flake were observed on the surface. Subsurface examinations have yet to be conducted.

Recommendations
Site XMH-925 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies outside the boundaries of the proposed gravel source project, and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-926
Determination: Not evaluated
Site XMH-926 is located on the southeast-facing slope of a small hilltop approximately 500m east of a lake. The surrounding terrain is comprised of kettle lakes and low ridges throughout flat plains. Basalt and chert debitage, including one retouched chert flake, was observed on the surface. Subsurface examinations have yet to be conducted.

Recommendations
Site XMH-926 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies outside the boundaries of the proposed gravel source project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-927
Determination: Not evaluated
Site XMH-927 is located on the southeast-facing slope of a small knoll on a long ridge approximately 400m southeast of a lake. Two gray chert flakes were observed on the surface. Subsurface examinations have yet to be conducted.

Recommendations
Site XMH-927 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies outside the boundaries of the proposed gravel source project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

4.2 Landscape-scale Fire Mitigation Project

USAG-AK, in coordination with the Alaska Fire Service, has proposed a landscape-scale fire mitigation project located within Army lands at Ft. Wainwright's Donnelly Training Area East (Figure 45). This project was developed explicitly to mitigate potential fire risks from range expansion in the Eddy Drop Zone Study Area.

Phase 1 and Phase 3 of the project are located directly on USAG-AK property, but lands involved in Phase 2 are located on private property in Delta Junction.

Phase 1 will begin during the 2003 summer field season. The forestry crew from Colorado State University and hotshot crews from the Alaska Fire Service will begin tree-thinning operations in the areas defined on Figure 45. Stand conversion by hydro-ax and shear-blading would begin in late fall 2003. All coniferous over story vegetation would be mechanically removed and piled into windrows within the treatment area and burned in the next winter. Hand thinning (removing the vegetation by chainsaw and other hand implements) will occur in areas of cultural and environmental sensitivity.

During Phase 2 the risks associated with nearby housing sub-divisions will be identified. All large volatile vegetation would need to be removed 100ft from structures, and smaller, less volatile vegetation would need to be cleared 30ft from structures and limbed to remove ladder fuels. The Bureau of Land Management will work with Alaska state agencies and private homeowners to identify the work that will be accomplished, and timelines required to accomplish this portion of the project.

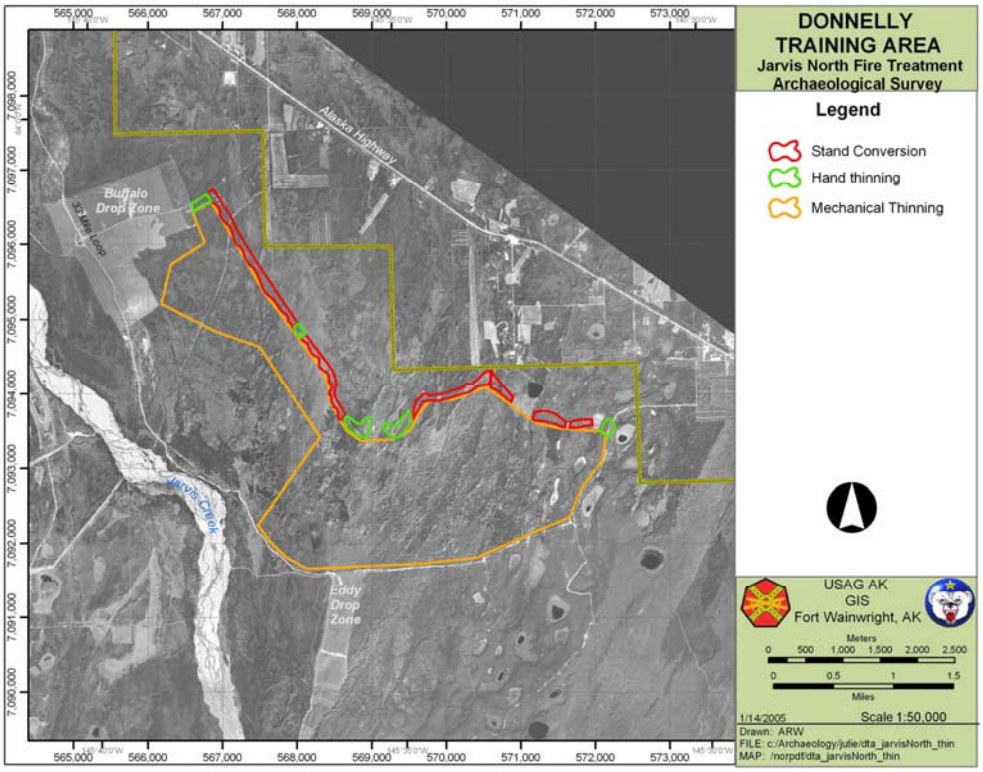

Figure 45. Location of the landscape-scale fire mitigation project

Phase 3 of the project would expand the firebreak with selected removal of vegetation within the project area. The treatment would entail clearing the forest in a series of polygons in a multi-year project. Similar stand conversion techniques would be used in this phase as were used in Phase 1.

Survey and Field Methods

In May 2003 two archaeological survey crews (each comprised of four archaeologists) employed by CEMML conducted pedestrian archaeological surveys of the APE encompassing an area of approximately 1160 acres; 98 percent of Phase 1 and 28 percent of Phase 3 was completed. Additional surveys will be conducted in 2004, before the work begins on Phase 3. The 2003 survey area is larger than the proposed Phase 1 firebreak footprint, in order to ensure coverage of areas that may sustain secondary impacts during thinning operations.

Survey methods undertaken in this project included walking parallel pedestrian transects spaced at a maximum of 20m in all areas that were not deemed too wet to contain cultural material. Transect survey units were partitioned according to existing roads and trails where possible. When existing roads did not provide for practical unit boundaries, a one square kilometer work unit was defined. Systematic sub-surface testing was undertaken in areas determined to have high probability for containing archeological sites. Areas that were shovel tested included, but were not limited to, any landform that afforded a view, lake margins, ridgelines, terrace edges, hilltops, and benches adjacent to steeper slopes. Shovel tests were approximately 30cm x 30cm. All soil removed from shovel tests was screened through ¼" hardware cloth.

Cultural Resources

Nine prehistoric archeological sites (XMH-992, XMH-993, XMH-994, XMH-995, XMH-996, XMH-997, XMH-998, XMH-999, and XMH-1051) have been identified within 1.5km of the proposed Phase 1 project area. Only one site (XMH-995) was located within the Phase 1 project APE. A staff archaeologist monitored the hand thinning which occurred around this site. No hand thinning or ground disturbance occurred within the boundaries of any of the nine archeological sites.

Following is a description of each recorded site near the currently proposed project area:

XMH-992

Determination: Not evaluated

Site XMH-992 is located on a relatively small, high knoll. There is approximately 30 percent surface visibility as a result of disturbance from a two-track road that leads to the top of the knoll from the south. The Granite Range is visible to the southeast and the Alaska Range to the southwest. According to available maps, there are two small lakes to the east approximately 200m away, but these are not visible from the site.

Figure 46. General view of XMH-992, facing south

Site XMH-992 consists mainly of lithic debitage. Seven flakes, two pieces of shatter, and one chert uniface were located on the surface (Figure 47). The flakes and

shatter consist of a mix of chert, basalt, and rhyolite.

The unifacially retouched flake is made of green chert. Three density plots were placed on the site and artifact density is calculated as being up to 1.33 artifacts per-square meter. A flake type analysis indicates that both primary and late stage lithic reduction occurred at the site. A total of two primary, one secondary, and four tertiary flakes were found. Subsurface examinations have yet to be conducted.

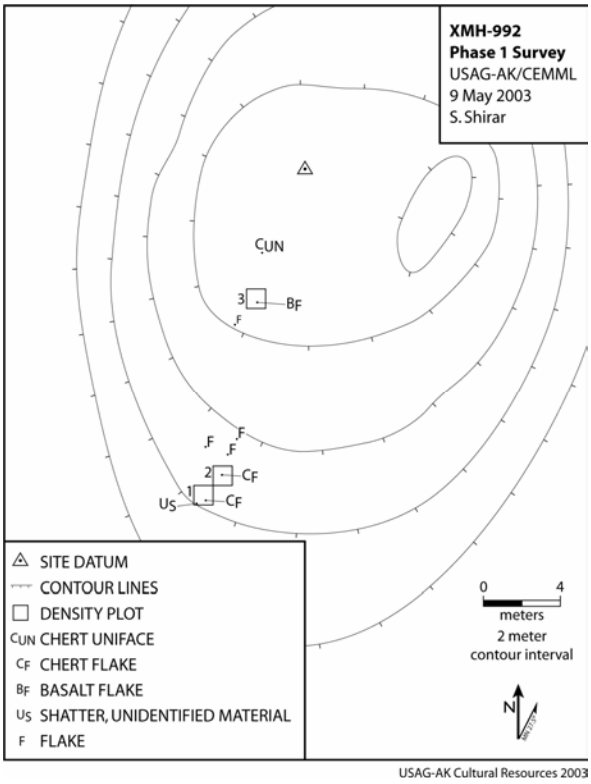

Figure 47. Site map of XMH-992

Recommendations

Site XMH-992 has initially been classified as a small lithic scatter where both primary and late stage lithic reduction occurred. This site lies outside the APE for the proposed firebreak project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-993

Determination: Not evaluated

Site XMH-993 is located on the highest point of an approximately 450m long narrow, north/south trending ridge. The site has approximately 40 percent surface visibility. There are views of the Granite Range to the southeast and of the Alaska Range to the southwest. The Alaska Highway can be seen to the northeast. Based on available maps there is a small lake 200m to the southeast and another 400m to the east, but they are not visible from the site. The western edge of the ridge drops quickly while the eastern edge gradually falls to a small bench and then becomes steep. The northern edge of the site drops quickly, and then flattens to where site XMH-998 is located. Site XMH-993 consists mainly of lithic debitage (175+ flakes), with fourteen formalized tools and diagnostic debitage found, including microblade, bifacial, and

Figure 48. General view of XMH-993, facing north

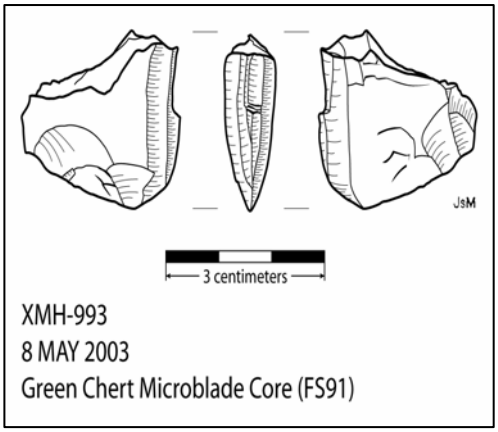

Figure 49. Illustration of microblade core from XMH-993

unifacial technology (Table 3). One wedge-shaped microblade core of green chert was found at the site (Figure 49). The core has a bifacial worked keel and exhibits five microblade facets. Unsuccessful platform rejuvenation rendered the core unusable and it was most likely discarded. Two uniface fragments of green chert (FS123 and FS152) refit into a single scraper. Chert, basalt, rhyolite, and quartzite are present among the flakes. Four density plots were placed on the site and contained mainly tertiary flakes (Tables 2-4; Figure 51). Artifact density is calculated as being up to 14.5 artifacts per-square meter. A flake type analysis indicates that late stage lithic reduction occurred at the site. One large primary flake was located at the site, however this artifact is most likely a flake blank brought into the site. Subsurface examinations have yet to be conducted.

Recommendations

Site XMH-993 has initially been classified as a large lithic scatter where microblade production and late stage lithic reduction occurred. This site lies outside the APE for the proposed firebreak project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

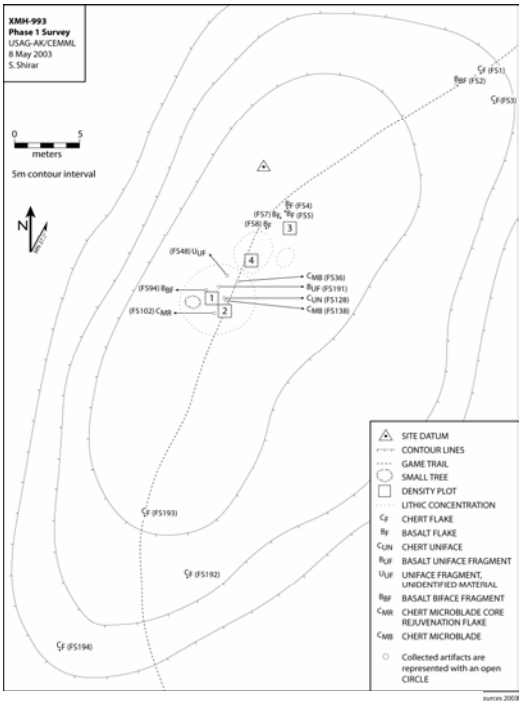

Figure 50. Site map of XMH-993

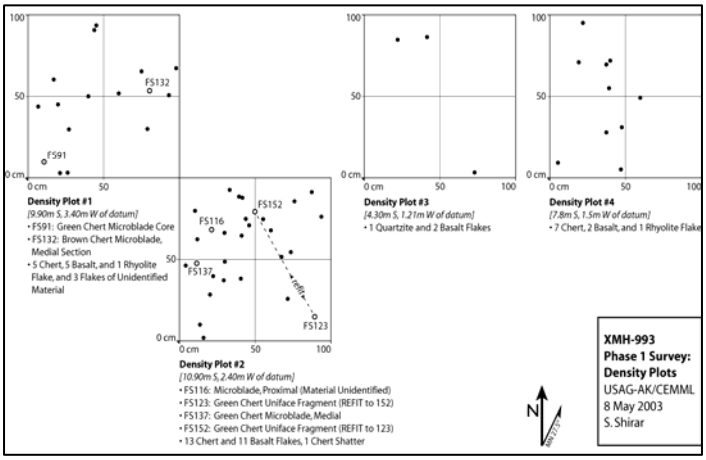

Figure 51. Density plots from XMH-993

Table 2. Density plots from XMH-993

DP#	Coordinates	Primary	Secondary	Tertiary	Flake Total	Tool Total	Artifact Total
DP 1	DP S9.90/W3.40	1	0	13	14	2	16
DP 2	DP S10.90/W2.40	0	0	28	28	4	32
DP 3	DP S4.30/E1.20	0	0	3	3	0	3
DP 4	DP S7.80/E1.50	0	0	10	10	0	10
	TOTALS	1	0	54	55	6	61

Table 3. Lithic assemblage recorded from XMH-993

Artifact Class	Frequency	% of Assemblage
Bifaces		
Biface fragments	2	3%
Unifacial		
End scraper fragment	1	1%
Uniface fragments	3	4%
Unifacially retouched flake	1	1%
Microblade Cores and Microblades		
Microblade core	1	1%
Microblade core rejuvenation flakes	1	1%
Microblades	5	6%
Debitage		
Flakes*	63	83%
Shatter	1	1%
Total	**78**	**100%**

* The total of 63 flakes came from the 4 density plots and several flakes that lay outside the main concentrations of debitage. The total number of flakes at the site has been estimated as being in access of 175 flakes. If this estimate is correct, the total of flakes at the site would be closer to 98%.

Table 4. Lithic tools recorded from XMH-993

FS#	Artifact Type	Material	Color	Length	Width	Weight
FS 2	biface fragment	basalt	gray	47.9mm	29mm	18.6g
FS 36	microblade, proximal	chert	green	8.1mm	8.8mm	0.1g
FS 48	end scraper fragment	unidentified	*	14.6mm	10.3mm	0.6g
FS 91	microblade core	chert	green	31.7mm	21.7mm	8g
FS 94	biface fragment	basalt	gray	2.9mm	19.6mm	4g
FS 102	microblade core rejuvenation flake	chert	green	16.8mm	9.7mm	0.6g
FS 116	microblade, proximal	unidentified	*	12.7mm	5.7mm	0.2g
FS 123	uniface fragment	chert	green	28.8mm	14.3mm	2.3g
FS 128	uniface, retouched flake	chert	dark gray	40.2mm	24mm	4.4g
FS 132	microblade, medial	chert	brown	11.3mm	5.9mm	1g
FS 137	microblade, medial	chert	green	7.1mm	3.7mm	0.05g
FS 138	microblade, proximal	chert	green	14.5mm	4.3mm	0.1g
FS 152	uniface fragment	chert	green	28.9mm	20.2mm	4.3g
FS 191	uniface fragment	basalt	gray	22.3mm	13.3mm	0.6g

XMH-994

Determination: Not evaluated

Site XMH-994 is located along the southern end of a north/south trending ridge (Figure 53). This is the southern termination of the same ridge that site XMH-993 is located on, but at a lower elevation. The area to the east and west slopes down very gradually. The ground rises gradually to the north for approximately 50m before a steep rise up to the location of site XMH-993. To the south, it slopes down gradually for about 50m before a steep drop

Figure 52. General view of XMH-994, facing north

off. Overall the site is broad and flat with potential to extend quite far in all directions. The Granite Range is visible to the southeast and the Alaska Range to the southwest. A small lake is located 200m east of the site, but is not visible. There is no surface visibility at all due to vegetation.

A total of two shovel tests were excavated to glacial till but only one produced cultural material. Shovel Test 1 was 30cm x 30cm and contained four light gray chert flakes and four dark gray chert flakes found at depths ranging from 0-20 centimeters below the surface (cmbs). All eight flakes were collected.

Recommendations
Site XMH-994 has been classified as a buried site that could potentially contain more cultural material. This site lies outside the APE for the proposed firebreak project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

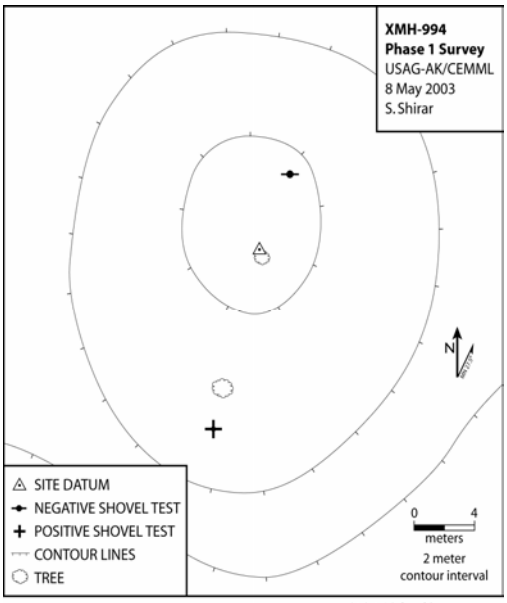

Figure 53. Site map of XMH-994

XMH-995
Determination: Not evaluated
Site XMH-995 is located on a north/south trending ridge overlooking a lake to the northwest Figure 54). The Granite Range can be seen to the southeast and the Alaska Range is visible to the southwest. The ground drops off quickly from the top of the ridge in all directions. The southern and northern terminations of the ridge are marked by open areas, with forest in between. A game trail runs through the forested area.

A total of three shovel tests were excavated to glacial till. However, only one shove test produced any artifacts. Shovel test 1 was 30cm x 30cm and contained one dark gray chert flake found at an approximate depth of 15-20cmbs. The shovel test was 50cm deep, and this artifact was collected.

Recommendations
Site XMH-995 has been classified as a buried site that could potentially contain more cultural material. This site lies outside the APE for the proposed firebreak project, and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

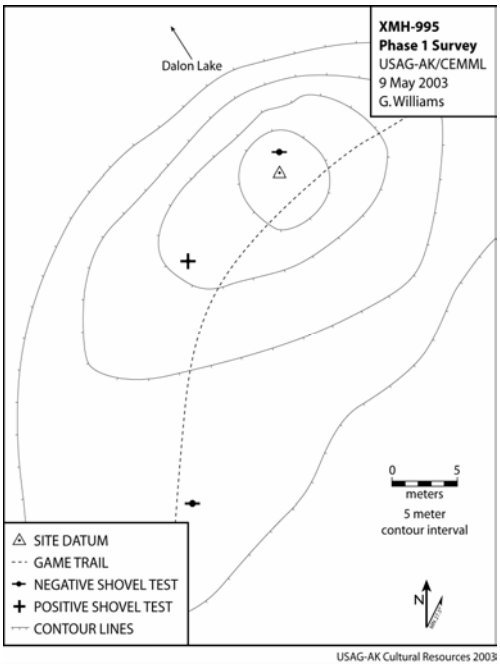

Figure 54. Site map of XMH-995

Figure 55. General view of XMH-995, facing north

Figure 56. General view of XMH-996, facing north

XMH-996

Determination: Not evaluated

Site XMH-996 is located on a north/south trending ridge (Figure 57). The site has approximately 50 percent surface visibility. The artifacts were found on the southern end of the ridge. There is steep slope off of all edges of the ridge. A lake is visible to the west, the Granite Range to the southeast, and the Alaska Range to the southwest.

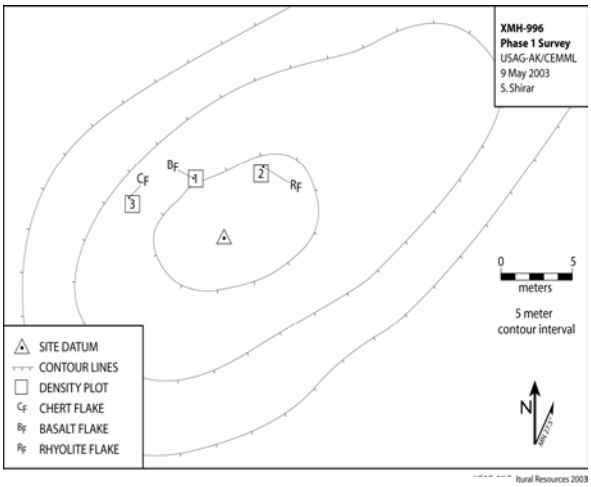

Figure 57. Site map of XMH-996

Site XMH-996 consists of one basalt flake, one tan chert flake, and one rhyolite flake. Three density plots were placed on the site, each with one artifact contained in them. Artifact density is calculated as being up to 1 artifact per-square meter. A flake type analysis indicates both primary and late stage lithic reduction occurred at the site. Subsurface examinations have not yet been conducted.

Recommendations

Site XMH-996 has initially been classified as a small lithic scatter where both primary and late stage lithic reduction occurred. This site lies outside the APE for the proposed firebreak project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-997

Determination: Not evaluated

Site XMH-997 is located along the northern end of a north/south trending ridge (Figure 58). This is the same ridge that site XMH-993 is on, but at a lower elevation. There is a steep slope extending off of the ridge in all directions from the top. There are no good views of the mountains or of any water bodies. Based on available maps, there is a small lake located approximately 100m to the east. The site has no surface visibility due to vegetation.

A total of four shovel tests were excavated to glacial till but only one shovel test produced artifacts. Shovel test 1 was 30cm x 30cm and contained one basalt flake and one chert flake found at an approximate depth of 5-15cmbs. These artifacts were collected.

Recommendations
Site XMH-997 has been classified as a buried site that could potentially contain more cultural material. This site lies outside the APE for the proposed firebreak project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

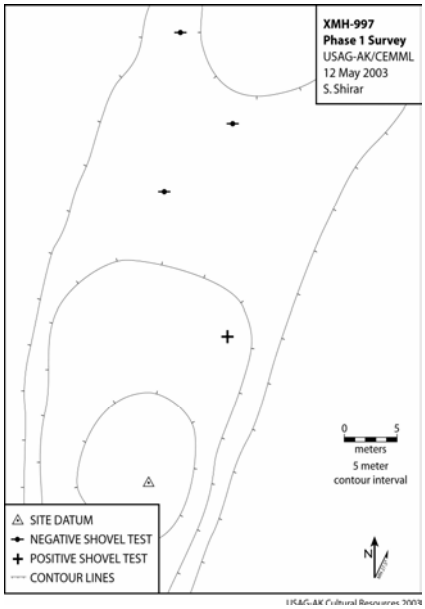

Figure 58. Site map of XMH-997

XMH-998
Determination: Not evaluated
Site XMH-998 is located on a north/south trending ridge between sites XMH-993 and XHM-997. The Granite Range is visible to the southeast. There is steep slope on either side of the ridge to the east and west. The site is located at a lower elevation than XMH-993 and at a higher elevation that XMH-997. The only surface visibility is along a game trail running the length of the ridge.


Figure 59. General view of XMH-997, facing south

A total of three shovel tests were excavated to glacial till but only one produced cultural material. Shovel test 1 was 30cm x 30cm and contained two chert flakes found at depths ranging from 0-10cmbs. These artifacts were collected.

Recommendations
Site XMH-998 has been classified as a buried site that could potentially contain more cultural material. This site lies outside the APE for the proposed firebreak project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.


Figure 60. General view of XMH-998, facing north

XMH-999
Determination: Not evaluated
Site XMH-999 is located on a small knoll with sparse tree cover approximately 250m south of site XMH-993 and approximately 100m east and 80m south of site XMH-994 (Figure 61). Views of the mountains and a small lake bed are obscured by vegetation. There is no surface visibility on this site due to ground vegetation.

A total of three shovel tests were excavated to glacial till but only one produced cultural materials. Shovel test 2 was 30cm x30cm and contained one dark gray chert flake at a depth of 15-20cmbs. This flake was collected.

Recommendations
Site XMH-999 has been classified as a buried site that could potentially contain more cultural material. This site lies outside the APE for the proposed firebreak project, and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

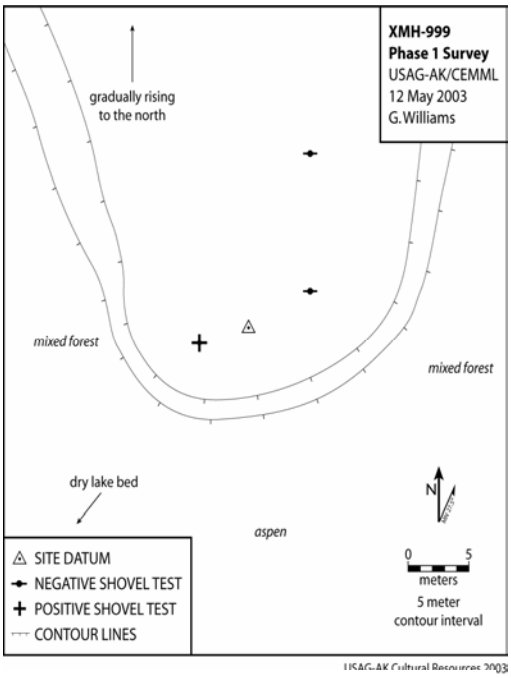

Figure 61. Site map of XMH-999


Figure 62. General view of XMH-999, facing south

XMH-1051
Determination: Not evaluated
Site XMH-1051 is located on a narrow, short northwest/southeast trending ridge (Figure 64). The is site is approximately 100m west of a lake, however the lake can only be seen when there are no leaves on the trees. The mountains cannot be seen due to trees. There is approximately 10 percent surface visibility due to ground vegetation.

Site XMH-1051 consists of one basalt flake found of the surface, which was collected. No other artifacts were found on the surface or during shovel testing. A total of eight shovel tests were placed along one transect at 10m intervals.

Recommendations
Site XMH-1051 has initially been classified as an isolated find, however the site could potentially contain more cultural material. This site lies outside the APE for the proposed firebreak project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Figure 63. General view of XMH-1051

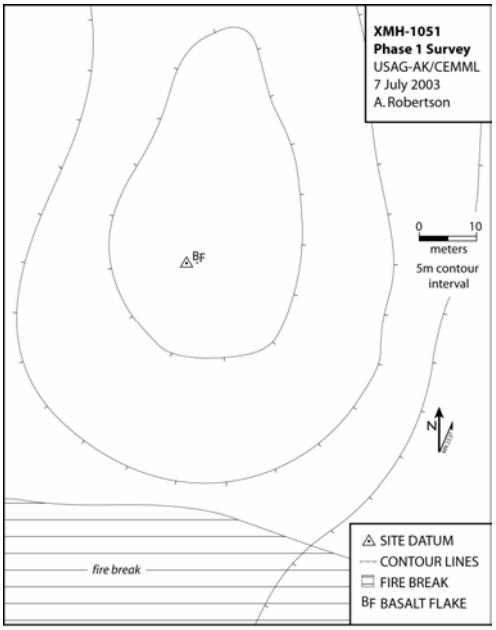

Figure 64. Site map of XMH-1051

4.3 Unmanned Aerial Vehicle Launch and Recovery Site

USAG-AK has proposed construction of an Unmanned Aerial Vehicle (UAV) launch and recovery site located within Army lands on Ft. Wainwright, Alaska (Figure 65). The project involves the construction of a 600ft long, 50ft wide runway to launch and recover UAVs, as well as support facilities, including a 3000ft^2 one-story building for storage and maintenance. The building will be located adjacent to the runway with access to Bolio Lake Road. A 100ft perimeter will be Hydro-axed around the runway to control vegetation.

Survey and Field Methods

In the summers of 2002 and 2003, two archaeological survey crews (each comprised of four archaeologists) employed by CEMML conducted a pedestrian survey of the proposed UAV launch and recovery project at Ft. Wainwright's Donnelly Training Area. The project's APE encompassed an area larger than the anticipated construction footprint, in order to ensure coverage of areas that may incur secondary impacts during construction or use.

Parallel pedestrian transects spaced at 20m were walked systematically across the APE and surrounding area. Transect survey units were partitioned according to existing roads and trails where possible. Systematic sub-surface shovel testing was undertaken in areas considered to have high probability for containing archaeological sites. Areas that were shovel tested included but were not limited to: landforms affording a view of surrounding terrain, lake margins, ridgelines, terrace edges, hilltops, benches adjacent to steeper slopes, and bluffs. Shovel tests were typically 30cm x 30cm and excavated into glacial till or consolidated outwash. All soil removed was screened through ¼" hardware cloth.

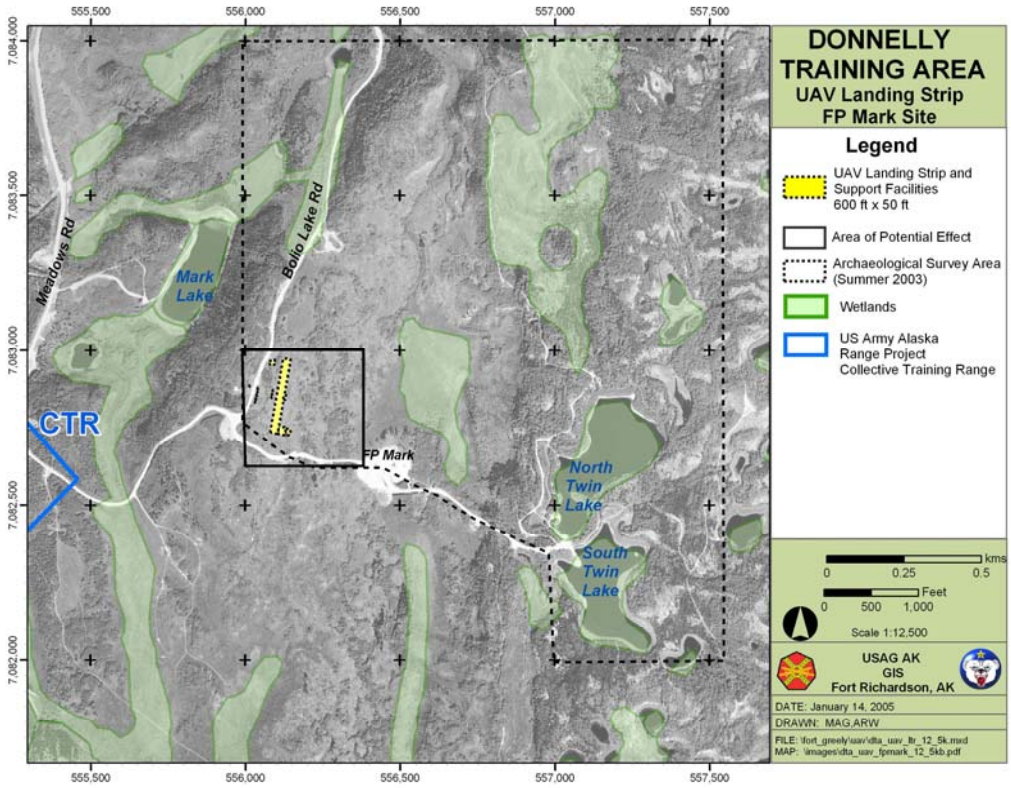

Figure 65. Location of the APE for the Unmanned Aerial Vehicle project

Results
Pedestrian survey of the proposed project area failed to identify any cultural resources within the boundaries of the proposed project's APE. All previously recorded archaeological sites or historic properties fall outside the proposed project area. Subsequently, the proposed project will have no effect on historic properties.

Cultural Resources
Eighteen prehistoric sites have been identified within 1.5km of the proposed project area. Sites located to the east of the APE include two sites (XMH-267 and XMH-268) recorded during a 1979 survey (Holmes 1979) and six sites recorded during the CEMML 2003 survey for this project (XMH-1052, XMH-1053, XMH-1054, XMH-1055, XMH-1056 and XMH-1057).

To the south of the proposed project area, four sites (XMH-982, XMH-935, XMH-936, and XMH-937) were recorded during surveys conducted by CEMML in 2002 (Hedman et al. 2003). To the northwest of the proposed project area, four additional sites (XMH-930, XMH-931, XMH-932 and XMH-933) were also identified by CEMML (Hedman et al. 2003).

Following is a description of each site near the currently proposed project area:

XMH-267
Determination: Not evaluated
Site XMH-267 is located on a glacial moraine knoll. A number of flakes were observed scattered on the ground on the southwest slope of a sparsely vegetated knoll. A total of 21 waste flakes and two retouched flakes were collected.

Recommendations
Site XMH-267 has initially been classified as a large lithic scatter that could potentially contain more cultural material. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-268
Determination: Not evaluated
Site XMH-268 is located on a glacial moraine knoll. The site has a 360° unobstructed view of the surrounding terrain. The site consists of an isolated biface fragment observed in a disturbed area. The fragment appears to be the basal segment of a notched point or knife (Holmes 1979). The artifact was collected in 1979 and no artifacts were observed on the surface in 2003.

Recommendations
Site XMH-268 has been classified as an isolated find, however the site could potentially contain more cultural material. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-930
Determination: Not evaluated
Site XMH-930 is located along the north shore of a lake. The surrounding area is characterized by mixed forest with sparse grass cover along the lakeshore. Surface visibility is high due to the sparse vegetation. The site may become inundated if lake levels become higher. Three chert flakes, one utilized chert flake, and one unifacially worked flake tool were observed on the surface. The area has been impacted by heavy vehicle traffic and modern use along the lakeshore. Artifacts were collected to prevent loss or further damage. No subsurface examinations will be needed, as artifacts were observed lying on glacial till.

Figure 66. General view of XMH-930, facing east

Recommendations
Site XMH-930 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-931
Determination: Not evaluated
Site XMH-931 is located along a large ridge extending to the edge of a lake. The site is approximately 100m west of the lake, overlooking another lake to the south. The site consists of an isolated find identified during pedestrian survey; a single chert flake observed in an exposure from a road cut. Subsurface examinations have yet to be conducted.

Recommendations
Site XMH-931 has been classified as an isolated find, however the site could potentially contain more cultural material. This site lies outside the APE for the proposed UAV launch and recovery site project, and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-932
Determination: Not evaluated
Site XMH-932 is located on an east-west trending ridge, 250m north of a lake. The site location has a commanding view of the lake and surrounding area. Surface visibility is high due to sparse vegetation. One chert flake and one basalt flake were observed on the exposed surface of a south-facing slope. Subsurface examinations have yet to be conducted.

Recommendations
Site XMH-932 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Figure 67. General view of XMH-932, facing northeast

XMH-933
Determination: Not evaluated
Site XMH-933 is located on a flat ridge top overlooking a lake approximately 150m to the south. Surface visibility is low because of vegetation. Two chert flakes were observed on the exposed surface of a tree fall. A total of four shovel tests were excavated with negative results.

Recommendations
Site XMH-933 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Figure 68. General view of XMH-933, facing north

XMH-935
Determination: Not evaluated
Site XMH-935 is located on a low north-south trending ridge, situated between two lakes. The site is located approximately 0.6km south one lake and 1.2km north-northwest of the other. Surface visibility is high due to large naturally eroded areas with sparse vegetation. Site XMH-935 is located to the north, and site XMH-937 is to the south, along the same landform.

Figure 69. General view of XMH-935, facing north

Site XMH-935 consists of one light-gray chert microblade observed in an exposed area on the surface. The microblade is 34mm long,

7.2mm at the platform, 9.9mm wide at its widest point, and weighs approximately 1.2g. The microblade has remnants of bifacial removals from the core on one margin and the remnants of a reverse microblade removal on the other margin. This microblade may have been an early removal from the core. Subsurface examinations have yet to be conducted.

Recommendations
Site XMH-935 has been classified as an isolated find, however the site could be a microblade production site and potentially contain more cultural material. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-936
Determination: Not evaluated
Site XMH-936 is located on a low north-south trending ridge between two lakes. The site is located approximately 0.3km south of one lake, and 1.1km north-northwest of the other. Surface visibility is high due to large naturally eroded areas with sparse vegetation. Sites XMH-935 and XMH-937 are located to the south along the same landform. Three chert flakes were observed on the surface. Subsurface examinations have yet to be conducted.

Figure 70. General view of XMH-936, facing west

Recommendations
Site XMH-936 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-937
Determination: Not evaluated
Site XMH-937 is located on a low north-south trending ridge between two lakes. The site is located approximately 0.5km south of one lake and 1.2km northwest of the other. Surface visibility is high due to large naturally eroded areas with sparse vegetation. Sites XMH-935 and XMH-936 are located to the north along the same landform. A total of five chert tertiary flakes were observed on the ground surface in an eroded spot on the northeast slope of a long finger ridge. Subsurface examinations have yet to be conducted.

Figure 71. General view of XMH-937, facing west

Recommendations
Site XMH-937 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-942
Determination: Not evaluated
Site XMH-942 is located along the western edge of a broad ridge and overlooks the north end of a lake and the surrounding meadow that makes up the lake basin. The site was located during systematic shovel testing in association with pedestrian survey. A total of 13 shovel tests were excavated. Two shovel tests were positive, yielding one dark gray chert tertiary flake and one obsidian biface-thinning flake. All artifacts were collected.

Figure 72. General view of XMH-942, facing north

Recommendations
Site XMH-942 has been classified as a buried site that could potentially contain more cultural material. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-982
Determination: Not evaluated
Site XMH-982 is located on a low, narrow north-south trending moraine between two lakes. The site location is approximately 0.5km south of one lake and 1.2km northwest of the other. The site is bordered by mixed forest on the west and a broad meadow to the east. Large, naturally eroded areas with good surface visibility are prevalent atop the ridge. Site XMH-937 is located 70m to the northwest. The site consists of a quartz biface located during systematic shovel testing. A total of 4 shovel tests were excavated along the crest and near the southern end of the moraine. The one positive shovel test yielded the quartz biface.

Figure 73. General view of XMH-982, facing east

Recommendations
Site XMH-982 has been classified as a buried site that could potentially contain more cultural material. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if

the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1052

Determination: Not evaluated

Site XMH-1052 is located on a southwest-northwest trending ridge, which is approximately 50m long (Figure 77). The site has an approximately 180° unobstructed view of the surrounding terrain to the south, with Donnelly Dome visible but partially obstructed by Windy Ridge. There is an unobstructed view of the Alaska Range to the southwest, as well. There is a lake approximately 100m to the south, but it is not visible. A small pond is located 75m to the southeast and a second small pond is located 30m to the northeast, both of which can be seen from the northwest portion of the ridge. There is approximately 50 percent surface visibility on either end of the ridge with thick vegetation, consisting of large alder bushes, in the middle.

Figure 74. General view of XMH-1052, facing south

Site XMH-1052 consists of one white chert scraper (Figure 75) and one basalt projectile point (Figure 76) observed on the surface of the site. The projectile point is triangular in shape, 2.6cm long, 2.1cm wide at its base, and weighs approximately 3.0g. The scraper is 2.2cm long, 2.0cm wide, and also weighs approximately 3.0g. The projectile point was collected due to its uniqueness, while the scraper was left on the surface of the site. Subsurface testing has yet to be conducted and no density plots were calculated.

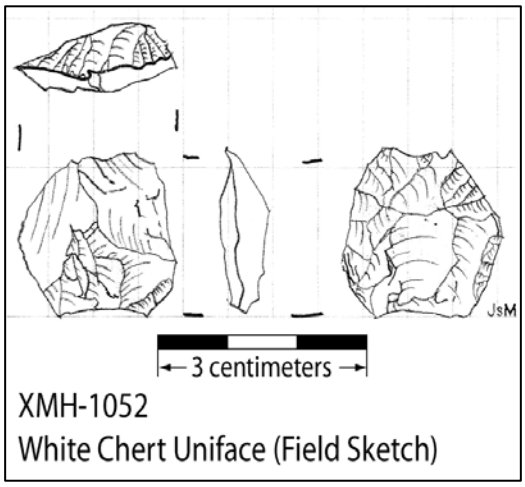

Figure 75. Unifacial end scraper from XMH-1052

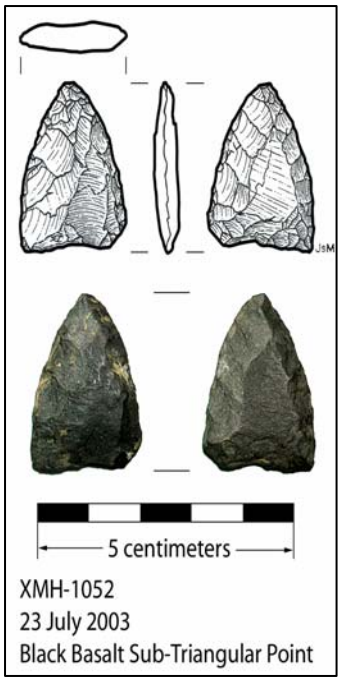

Figure 76. Projectile point from XMH-1052

Small sub-triangular points, similar to the one found at XMH-1052, are found at some of the oldest sites in Interior Alaska. These sites are attributed to the Nenana/Chindadn complex and date to between 10,000 and 11,000 BP. Nenana/Chindadn complex triangular and sub-triangular projectile points are present at the lower components of Broken Mammoth (Holmes 1996), Swan Point (Holmes et al. 1996), and Healy Lake (Cook 1996) in the Tanana Valley; Dry Creek (Hoffecker et al. 1996) and Moose Creek (Pearson 1997) in the Nenana Valley, and one refitted point from Owl Ridge (Hoffecker et al.1996) in the Teklanika Valley. These

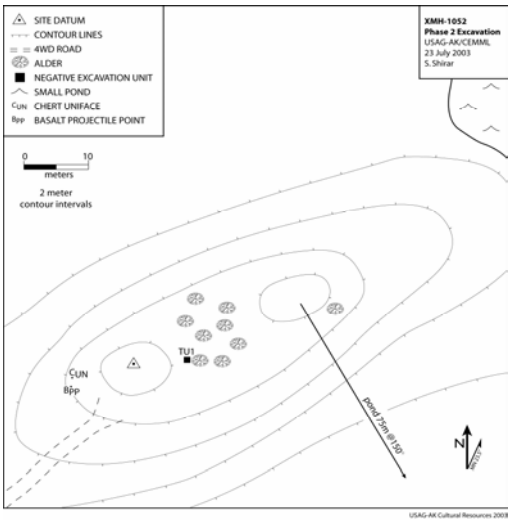

Figure 77. Site map of XMH-1052

points are small, usually no more then 3.5cm in length and 3cm wide, have a thin profile of usually no more then 0.5cm, and are basally thinned. These are all characteristics which the projectile point from XMH-1052 processes.

These small triangular points are similar in size and construction to Chindadn points that have a teardrop shape. These two point types co-occur at the Healy Lake and Moose Creek sites (Pearson 1997). Some archaeologists (Holmes 2000) refer to these small triangular projectile points as "Chindadn type 2" while others refer to them as "Paleo-Indian" projectile points (Yesner 1996:270).

Small unifacial end scrapers are also common in the Nenana/Chindadn sites (Cook 1996; Goebel et al. 1996; and Hoffecker et al. 1996) and are similar in size and construction to the small end scraper found at XMH-1052 (Figure 75).

Recommendations

Site XMH-1052 has been classified as a tool use site that could potentially contain more cultural material. The diagnostic artifacts present (small triangular point and end scraper) can be attributed to the Nenana/Chindadn complex and suggest the site could date to Pleistocene-Holocene boundary, but further investigation is needed. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1053

Determination: Not evaluated

Site XMH-1053 is located on the southern termination of an 80m long north-south trending ridge (Figure 79). The view-shed is minimal due to thick tree cover. A lake is visible through the trees to the southwest and is approximately 30m from the site. A small pond is located 75m north of the datum and is visible from the northern termination of the ridge. Surface visibility is approximately 75 percent along the ridge due to erosion.

Figure 78. General view of XMH-1053, facing north

This site consists of six tertiary flakes, and one rhyolite biface fragment identified on the surface. Three density plots were calculated at the site and artifact density is calculated at being up to 1.33 artifacts per square meter. A flake type analysis indicates late stage lithic reduction occurred at the site. Subsurface examinations have yet to be conducted. None of the artifacts were collected.

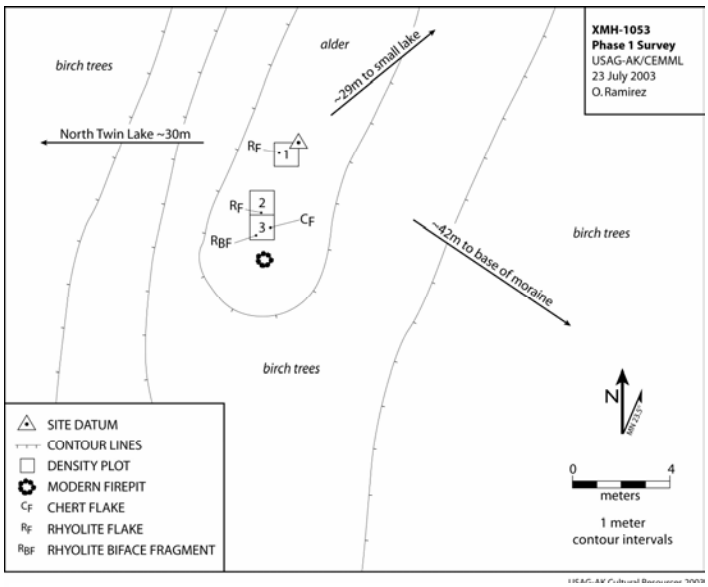

Figure 79. Site map of XMH-1053

Recommendations
Site XMH-1053 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1054
Determination: Not evaluated
Site XMH-1054 is located on a broad, flat bench that lies southwest of a prominent knoll (Figure 81). The Alaska Range is visible to the southwest and Donnelly Dome can barely be seen through the trees to the south-southeast. The nearest water source is a lake located approximately 100m to the west, which is not visible from the site. Surface visibility is approximately 30 percent.

Figure 80. General view of XMH-1054, facing south

Site XMH-1054 consists of lithic debitage and tools located on the exposed surface. Three density plots were calculated at the site and artifact density is calculated at being up to 5 artifacts per square meter. A flake type analysis indicates late stage lithic reduction occurred at the site. Subsurface examinations have yet to be conducted and none of the artifacts were collected.

Recommendations
Site XMH-1054 has initially been classified as a large lithic scatter where late stage lithic reduction occurred. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

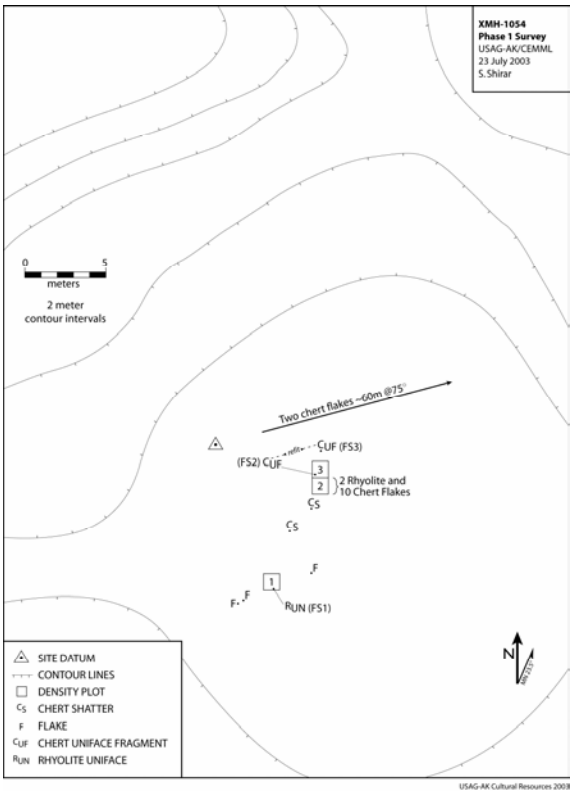

Figure 81. Site map of XMH-1054

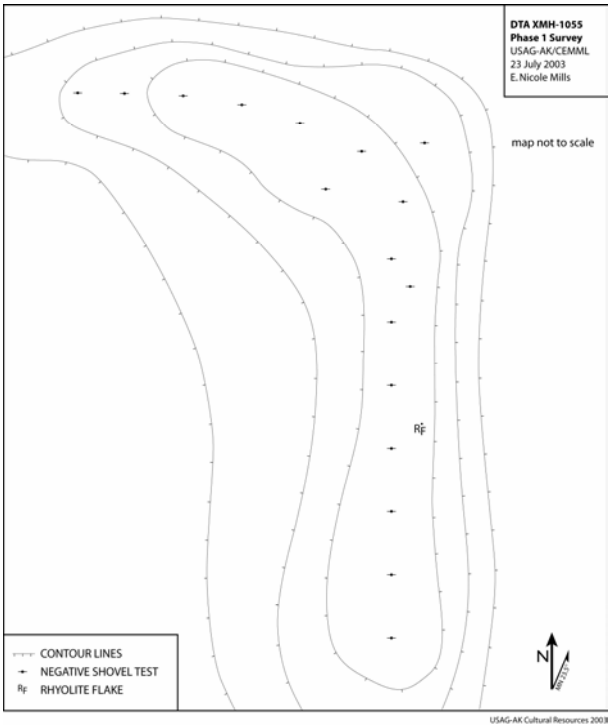

Figure 82. Site map of XMH-1055

XMH-1055

Determination: Not evaluated

Site XMH-1055 is located on a moraine approximately 100m west of a small lake, and offers a relatively unobstructed view of the area to the east (Figure 82). The "L" shaped moraine is vegetated primarily with moss, lichen, and sparse dwarf birch. Several small spruce trees are scattered throughout the area. Several large areas at the crest of the moraine were completely devoid of vegetation, with underlying soil exposed at the surface.

Site XMH-1055 is an isolated find consisting of a single secondary rhyolite flake identified on the surface slightly down slope of the crest of the moraine. A thorough examination of the surface of the moraine was conducted but no additional artifacts were located. A single transect of shovel tests was placed along the narrow crest of the moraine at 5m intervals. A total of 17 shovel tests were excavated, but no additional artifacts were encountered.

Figure 83. General view of XMH-1055, facing north

Recommendations

Site XMH-1055 has initially been classified as an isolated find, however the site could potentially contain more cultural material. This site lies outside the APE for the

proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1056

Determination: Not evaluated

Site XMH-1056 is located on the crest of a north-south trending moraine that is approximately 250m long and has a narrow crest (Figure 84). The site was identified near the northern end in an area that rises approximately 20m above the main portion of the moraine. Two small lakes are located nearby, but neither is visible from the site. The first lake is located 150m to the south, and the second is 150m to the northeast. The crest of the moraine on which the site was identified is devoid of trees and offers an almost unobstructed 360° view of the surrounding landscape. Vegetation at the site is represented primarily by moss, lichen, and forbs. The crest of the moraine contains several large, naturally eroded exposures.

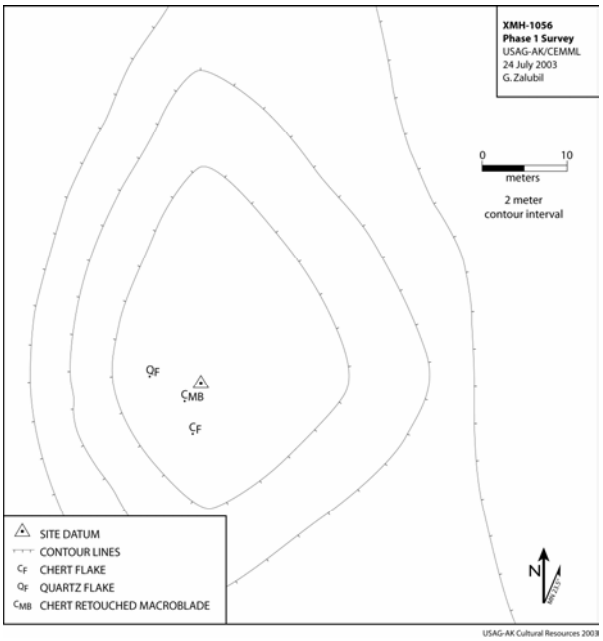

Figure 84. Site map of XMH-1056

Figure 85. General view of XMH-1056, facing west

Site XMH-1056 consists of one white quartz flake, one gray chert flake, and one fragment of a unifacially retouched gray chert blade. All three artifacts were encountered on the surface of the site. The chert flake exhibits use-wear/retouch on its margins and the unifacially retouched blade is made from the same material type as the chert flake. The chert blade weights 2.5g and measures 3.5cm long by 1.5cm wide. Subsurface examinations have not been conducted and no density plots were calculated.

Recommendations

Site XMH-1056 has initially been classified as a small lithic scatter where both primary and late stage lithic reduction occurred. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1057

Determination: Not evaluated

Site XMH-1057 is located on the northern portion of a prominent north-south trending ridge (Figure 86). The site is located approximately 120m north of site XMH-1056

along the same landform. The portion of the moraine on which the site was identified rises approximately 2m above the surrounding landscape. The closest water source to the site is a small lake located approximately 100m to the east. A second small lake is located approximately 250m to the south. Although the area in which the site was identified lacks substantial vegetation, the surrounding area contains tall trees which obstruct views of the surrounding area. The ground surface of the site is vegetated primarily by moss, lichen, and forbs, with several barren areas.

Site XMH-1057 was first identified by the presence of a large primary basalt flake encountered on the ground surface. The ground surface was thoroughly examined, however no additional artifacts were located. A total of eight shovel tests were excavated and a single shovel test encountered two biface fragments. The biface fragments are two fragments of the same tool and were manufactured from a dark-gray banded chert. No density plots were calculated at this site.

Recommendations

Site XMH-1057 has been classified as a buried site that could potentially contain more cultural material. This site lies outside the APE for the proposed UAV launch and recovery site project and therefore was not evaluated to determine eligibility for inclusion in the NRHP. However, if the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility for inclusion in the NRHP.

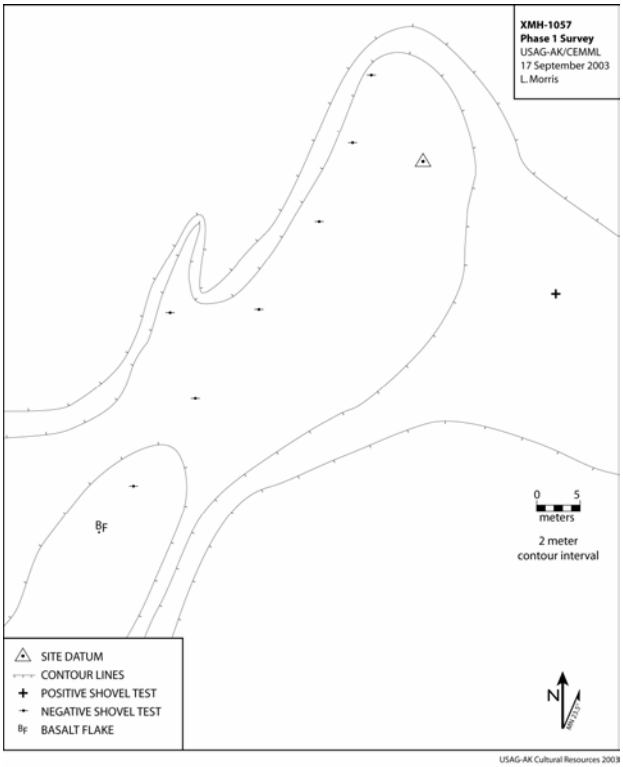

Figure 86. Site map of XMH-1057

Figure 87. General view of XMH-1057, facing south

4.4 Cold Weather/ Automotive Test Complex

In 2003, U.S. Army Cold Regions Test Center (CRTC) proposed to construct a Cold Weather/Automotive Test Complex on Army lands at the Donnelly Training Area, Fort Wainwright (Figure 88). The purpose of this facility is to enhance CRTC's capability to test Army ground vehicles in cold weather conditions and on ice.

There were two alternatives considered for the site of this project. Figure 88 shows the two general areas, Jarvis West and Donnelly Drop Zone. The size of the facility and requirements for the proximity to utilities, relatively flat topography, and noninterference with firing fans and USAG-AK activities eliminated most other options. The preferred alternative for the site is located at Jarvis West Training Area approximately 19km southwest of Delta Junction, and 5km west of the Richardson Highway. For more details on the Cold Weather/Automotive Test Complex see Robertson 2004.

Archaeological field crews, employed by CEMML were contracted by CRTC to conduct surveys of all areas potentially impacted (both directly and indirectly) by the proposed undertaking. Four crews, comprised of four archaeologists each, conducted surveys at Donnelly Training Area.

Survey and Field Methods

Parallel pedestrian transects spaced at 20m were walked systematically across the APE and surrounding area. Transect survey units were partitioned according to existing roads and trails where possible. When existing roads did not provide for practical unit boundaries, a one square kilometer work unit was defined. Systematic sub-surface shovel testing was undertaken in areas considered to have high probability for containing archaeological sites. Areas that were

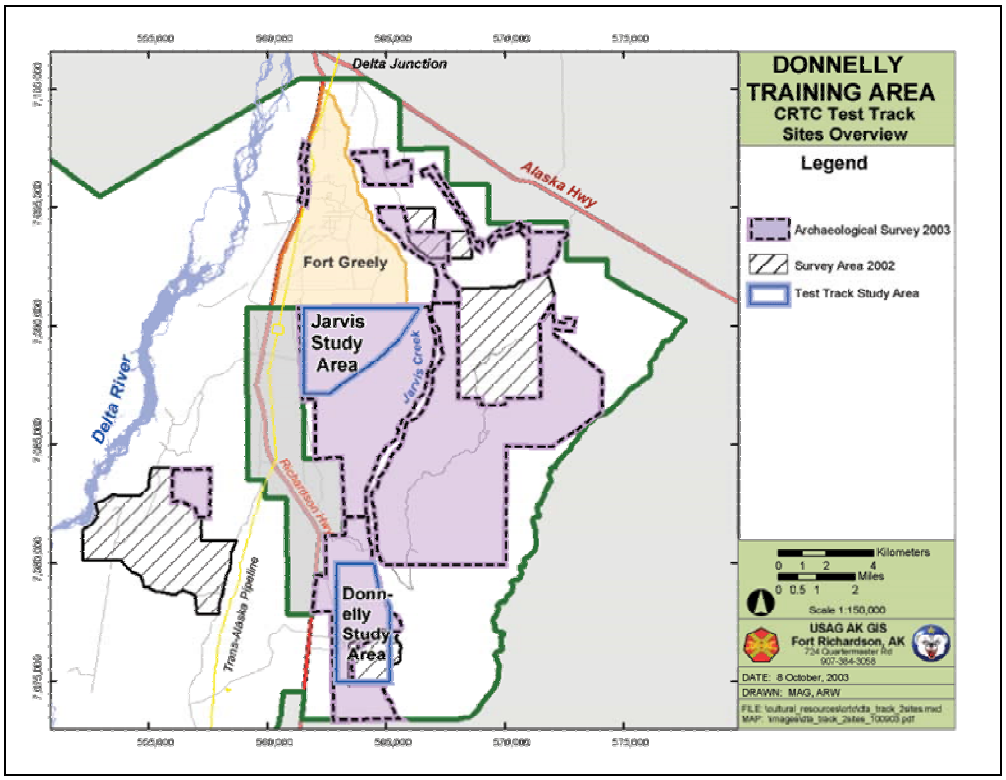

Figure 88. Area surveyed and location of the two proposed alternatives

shovel tested included but were not limited to, landforms affording a view of surrounding terrain, lake margins, ridgelines, terrace edges, hilltops, benches adjacent to steeper slopes, and the bluffs over looking Jarvis Creek. Shovel tests were typically 30cm x 30cm and excavated into glacial till or consolidated outwash. All soil removed was screened through ¼" hardware cloth.

Results

For details on the archaeological review and analysis, which was conducted for this project, refer to Robertson 2003. A copy can be obtained from the U.S. Army Cold Regions Test Center. All cultural resources identified during the CRTC study are discussed in the report.

4.4.1 Cultural Resources in the Jarvis West Alterative

Fourteen prehistoric sites are located in the Jarvis West alterative of the proposed Cold Weather/Automotive Test Complex (XMH-1058, XMH-1059, XMH-1060, XMH-1061 XMH-1062, XMH-1063, XMH-1064 XMH-1065 XMH-1066, XMH-1067, XMH-1068, XMH-1069, XMH-1070 and XMH-1071) and five prehistoric sites have been recorded within 1km of the proposed project area (XMH-1074, XMH-1075, XMH-1076, XMH-1077 and XMH-1078). Only four site evaluations were completed (XMH-1059, XMH-1060, XMH-1061 and XMH-1065) before the project proponents relocated the proposal to an area where no historic properties would be affected. Once this location was established, site evaluations ceased, as it was no longer necessary to evaluate sites outside the redefined APE. Following is a description of each recorded site in and around the Jarvis West proposed project area:

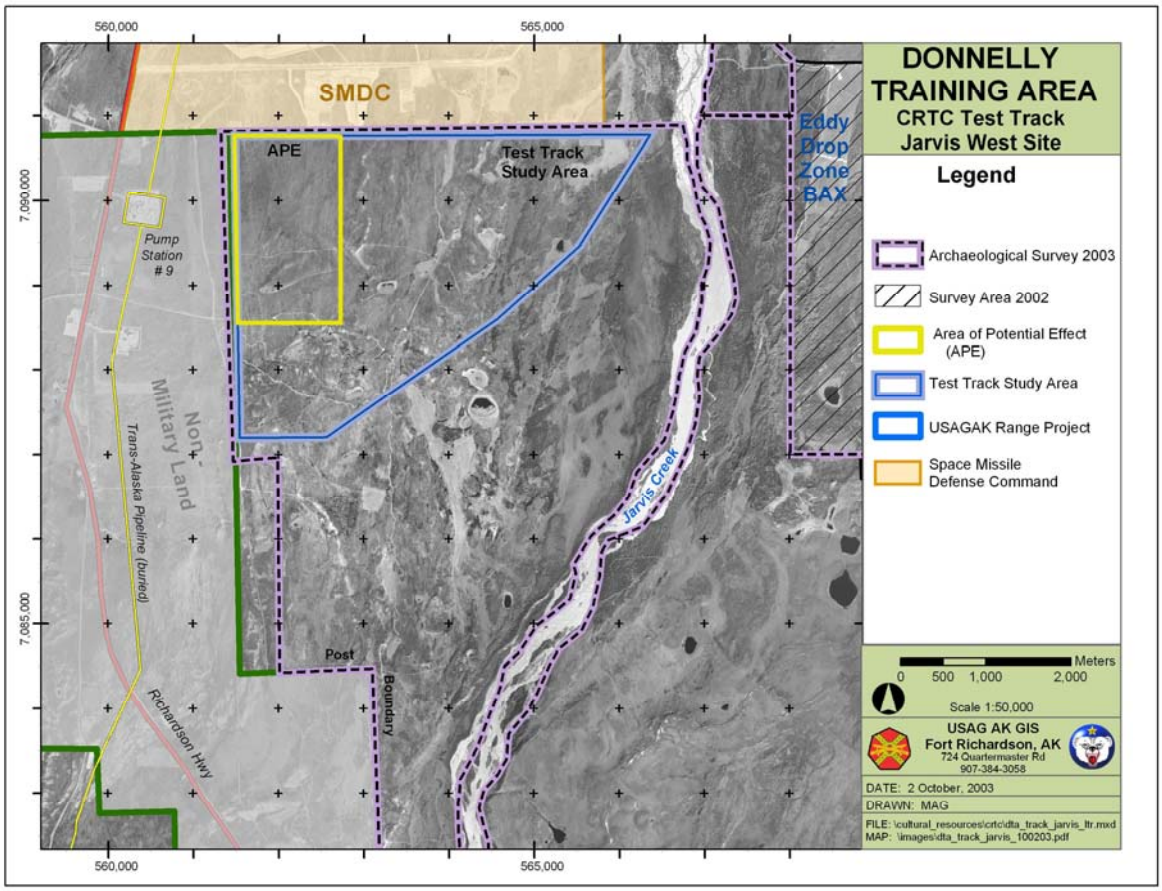

Figure 89. Project area, Jarvis West alternative

XMH-1058

Determination: Not evaluated

Site XMH-1058 is located on the northern end of a narrow north/south running ridge on a knoll rising slightly above the rest of the ridge (Figure 90). Donnelly Dome is visible to the south, the Granite Mountains to the southeast, and the Alaska Range to the southwest. The closest water source is a small lake, located about 30m to the northwest that can be seen from the highest point on the knoll. There is 70-80 percent surface visibility at the site and a forest fire burned the entire area in 1999.

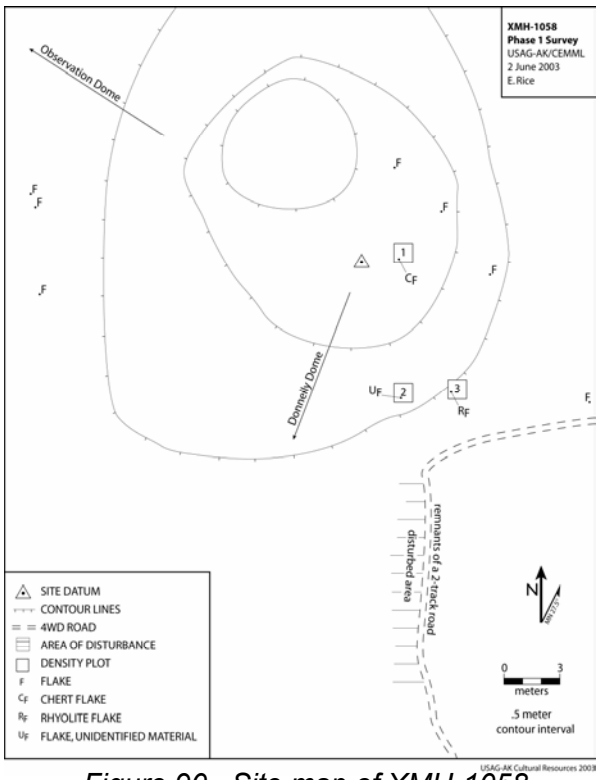

Figure 90. Site map of XMH-1058

Figure 91. General view of XMH-1058, facing south

Site XMH-1058 consists of 10 pieces of lithic debitage located on the surface. The flakes consist of a mix of chert, basalt and rhyolite. Three density plots were placed on the site each with one flake in them. Artifact density is calculated as being up to one artifact per-square meter. A flake type analysis indicates both primary and late stage lithic reduction occurred at the site. No artifacts were collected and subsurface examinations have yet to be conducted.

Recommendations

Site XMH-1058 has initially been classified as a small lithic scatter where both primary and late stage lithic reduction occurred. This site lies outside the APE for this proposed project and was not evaluated to determine eligibility for inclusion in the NRHP. If the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility.

XMH-1059

Determination: Not Eligible

Site XMH-1059 is located on the western margin of a small, flat moraine and encompasses approximately 25m x 25m (Figure 94). The moraine rises approximately 5m above the surrounding landscape and is relatively flat, sloping slightly to the south. The closest water source to the site is a small dried lakebed located approximately 1.5km to the east of the site. A second small lake is located approximately 3km to the east, while a creek is located approximately 5km to the east.

A 1999 forest fire burned the area leaving only charred trunks and stumps of spruce and birch trees. The tallest vegetation at the site is dwarf poplar, while the ground cover includes various forbs, grasses, sedges, moss, and lichen. This lack of vegetation offers a virtually unobstructed 360° view of the surrounding area. Visible from the site is Donnelly Dome to the south, a large portion of the Alaska Range to the southwest, and the Granite Mountains to the southeast. Several areas, specifically on the western edge of the landform, had glacial till exposed at the surface and have excellent surface visibility.

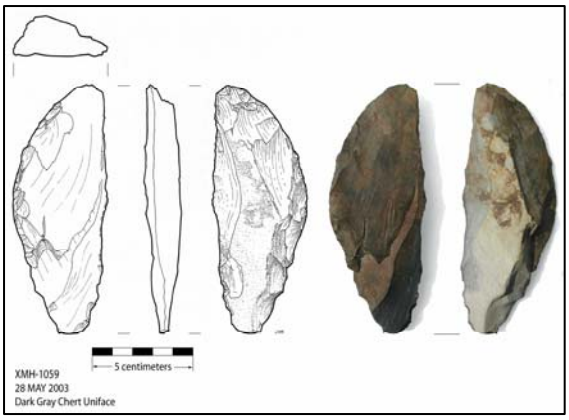

Figure 92. Unifacial tool from XMH-1059

Figure 93. General view of XMH-1059, facing north

The site consists of a single unifacial tool found on the surface. The artifact exhibits both unifacial and bifacial reduction; however its primary form of reduction is unifacial (Figure 92). A portion of one lateral margin is bifacially worked, the rest of that side, along with one end of the artifact is unifacially worked. The other lateral margin exhibits light to medium unifacial retouch. The tool is 104.3mm long, 44.5mm wide, 15.5mm thick, and weighs 67.5g. The tool is manufactured from dark gray chert and has cortex on its dorsal surface. This artifact was collected.

An intensive examination of the ground surface did not locate any additional artifacts. A shovel test grid was laid out over the landform, and a total of 72 shovel tests were excavated, no additional artifacts were found. A typical soil profile consisted of approximately 2cm of very dark gray loess representing soil affected by the 1999 forest fire. The very dark gray loess was underlain by 14cm of brown loess. Directly beneath the brown loess was yellowish brown sandy loess. All shovel tests were excavated at least 10cm into dense glacial till.

Recommendations

Pedestrian survey and 72 shovel tests produced a total of only one surface artifact. This finding suggests that XMH-1059 is an isolated find. The paucity of cultural material leads to the conclusion that XMH-1059 does not contain enough information that is important to our understanding of the regions prehistory or history and is not eligible for inclusion in the National Register of Historic Places.

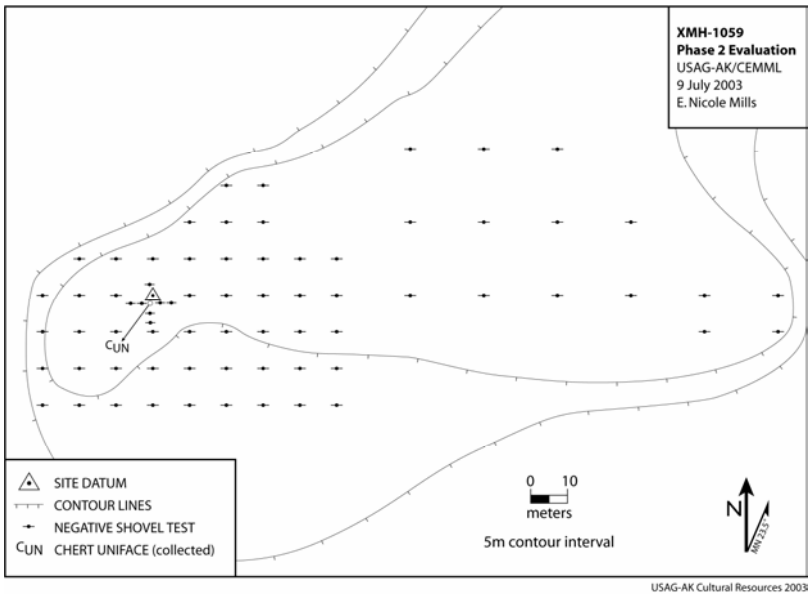

Figure 94. Site map of XMH-1059

XMH-1060

Determination: Not Eligible

Site XMH-1060 is located on a north-south trending ridge approximately 40m south of a small rise along the ridge crest (Figure 96). The site encompasses 25m x 25m and consists of a single prehistoric artifact. The western face of the ridge rises sharply while the eastern face has a gentler slope. The rise is elevated approximately 5m above the southern extension of the ridge but less than 1m above the northern portion of the ridge. The nearest water source is a small dried lakebed located approximately 1km south of the site. A second lake is located approximately 2.5km east-southeast and a creek is 3.5km east of the site. Forest fires burned the site and the surrounding area in 1999, which removed most of the vegetation.

The top of the rise has a 360° view of the surrounding area. Donnelly Dome and the Granite Mountains can be seen to the south and southeast, respectively. A portion of the Alaska Range can be seen to the southwest. The vegetation in and around the site consists of dwarf birch, moss, lichen, grass, and sedge. Several areas had exposed glacial till and offered excellent surface visibility. Approximately 50 percent of the ground surface in the area is devoid of vegetation and is exposed.

Site XMH-1060 consists of a single flake of light gray chert. An intensive examination of the ground surface did not locate any additional artifacts. A shovel test grid was laid out over the landform, and a total of 76 shovel tests were excavated. No artifacts were found. The majority of shovel tests excavated at the site exhibited the same soil profile consisting of approximately 1cm of very dark grayish brown loess representing soil affected by 1999 forest fires. The very dark grayish loess was underlain by 12cm of brown sandy loess. Directly beneath the brown sandy loess is dark yellowish brown sandy loess. Shovel tests were excavated at least 10cm into dense glacial till.

Figure 95. General view of XMH-1059, facing north

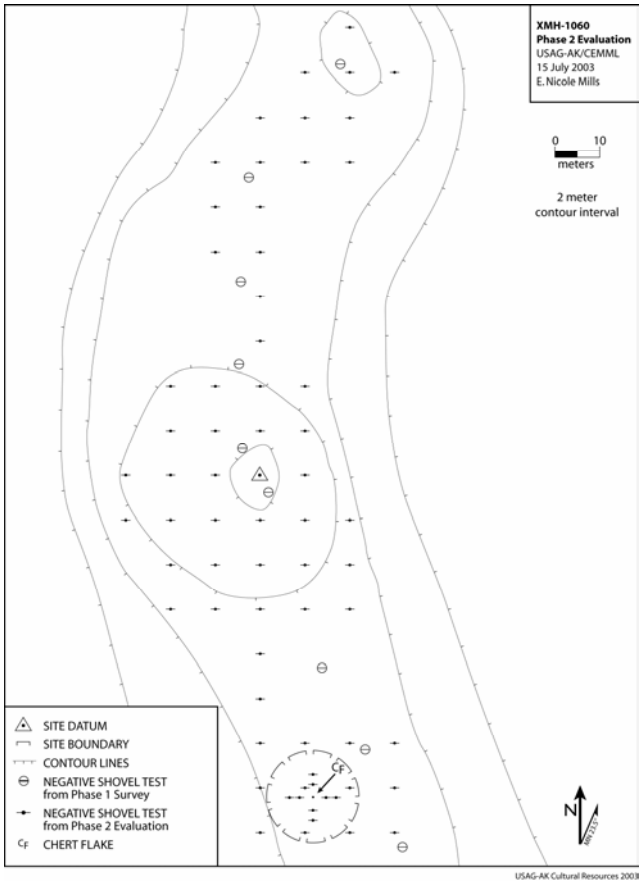

Figure 96. Site map of XMH-1060

Recommendations
Pedestrian survey and 76 shovel tests produced a total of only one flake found on the surface. This finding suggests that XMH-1060 is an isolated find. The paucity of cultural material leads to the conclusion that XMH-1060 does not contain enough information that is important to our understanding of the prehistory or history of the region and is not eligible for inclusion in the National Register of Historic Places.

XMH-1061
Determination: Eligible
Site XMH-1061 is located on a high point of a north-south trending ridge. It also has a secondary component on a bench 50m south-southwest of the datum. The site is located on and around a hilltop that is 50m x 40m (Figure 100). The area was burned in a 1999 forest fire and many dead and burnt spruce trees surround the site. The hilltop rises 25m above the surrounding terrain to the east and west, and 10m above the rest of the ridge to the north and south. The slope is relatively steep to the west, and gradually sloping to the north, east, and south. The hilltop crest has been eroded by wind and is devoid of large trees, but does contain dwarf aspen and grasses. There is approximately 40 percent ground visibility at the site.

The bench to the south-southwest of the hilltop, where artifacts were also found on the surface, has vegetation comparable with the hilltop. To the north of the hilltop, the sloping terrain is thick with dead spruce trees and willow shrubs. To the south of the hilltop and east of the bench, the vegetation consists of dead and burnt spruce trees, grasses, fireweed, and cranberries. The nearest water source is a lake located approximately 1.5km to the northeast, which cannot be seen from the site. The view shed from the top of the site is approximately 200° with good views of Donnelly Dome, the Alaska Range, and the Granite Mountains on a clear day.

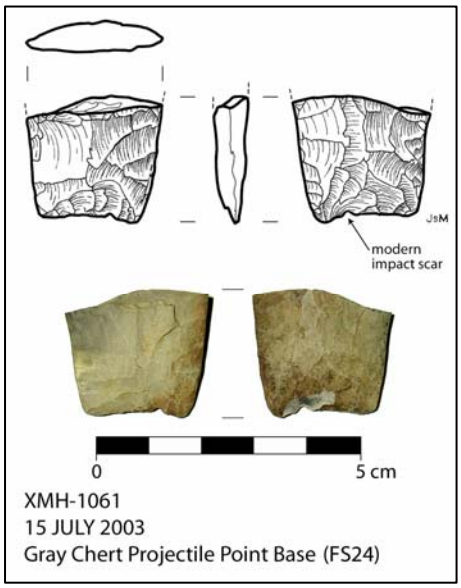

Figure 97. Biface Fragment from XMH-1061

Figure 98. View of site XMH-1061, facing north

Site XMH-1061 consists mainly (91 percent) of lithic debitage. Twenty six flakes were found on the surface and an additional five flakes were found subsurface in either shovel tests or test units. Two tools were found at the site, both on the surface. One is a chert biface fragment and may be the basel fragment of a projectile point (Figure 97). It is gray in color, 23.75mm long, 25.70mm wide, and weighs 4.22g. The other is a large flake core of unidentified material with

several large flakes taken off of it. Chert, basalt, rhyolite, quartz, and obsidian (a non-locally occurring material type) were present among the debitage. A total of eleven density plots were placed on the site. Artifact density is calculated as being up to 1.27 artifacts per-square meter. Based on flake type analysis and the presence of the flake core, primary and late stage lithic reduction occurred at the site (Table 5).

Shovel tests were systematically placed throughout the site area at intervals of 10m. Four shovel tests were placed at 5m intervals near positive shovel tests in the northwest corner of the site. A total of 58 shovel tests were excavated. The depth of shovel tests varied, but all were excavated to glacial till. A total of four shovel tests were positive with each containing one artifact. Subsurface artifacts were found from 10-20cm below the surface in all positive shovel tests. Based on the results of the survey and testing, the site area is estimated at approximately 120m x 60m.

Three 1m x 1m test units were excavated at site XMH-1061. One unit was placed at the base of the hill to the southeast of the site datum, near a positive shovel test. The second and third test units were placed near positive shovel tests and surface artifacts on the slope of the hill north-northwest of the site datum. The units were excavated in 5cm levels until glacial till was reached throughout the entire unit floor. Test units one and two contained no cultural material. Test unit three contained one artifact recovered from level four, 15-20cm below the surface (Figure 99). No subsurface features were identified at the site. Soil thickness varied 10-60cm across the site. The top of the site has sustained considerable wind erosion, and soil deposition only averaged 15cm. Soil in this area consists of loosely compacted, dark brown, organically rich loess to an average depth of 5cm. Below this organic horizon, the soil consists of moderately compacted yellow brown loess with a low density of gravel and cobbles. Glacial till is encountered below this loess deposit and consists of yellow brown sandy loess with a high density of gravels and cobbles. Soil down-slope from the top of the site shows more deposition,

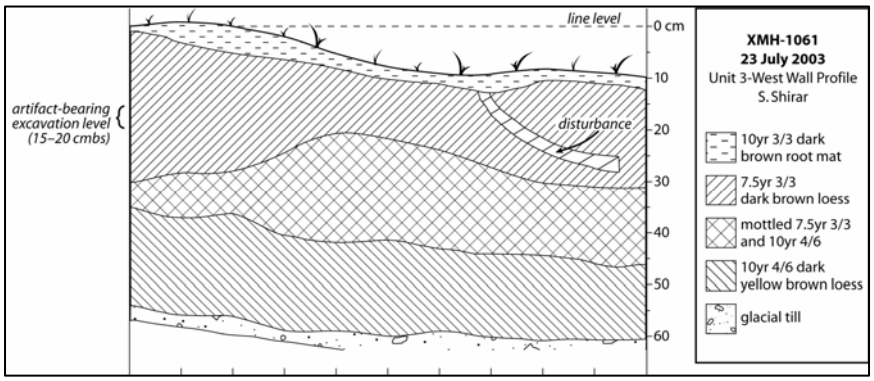

Figure 99. Soil profile of test unit 3, XMH-1061

averaging 45cm. Soil in these areas consists of loosely compacted, dark brown, organically rich loess that is present to an average of 5cm below the surface. Below this organic horizon, the soil consists of moderately compacted brown to dark brown loess with a low density of gravels and cobbles. Below this is a third layer, consisting of moderately compacted yellow brown loess with a moderate density of gravels and cobbles. Glacial till is encountered below these loess deposits, consisting of very loosely compacted yellow brown sandy loess, with a high density of gravels and cobbles.

Recommendations

Pedestrian survey, 58 shovel tests, and three test units produced a total of 29 artifacts at XMH-1061; 24 found on the surface, and 5 recovered from below the surface. A total of two tools were found including 1 chert projectile point fragment and a large flake core. The remaining finds are lithic debitage.

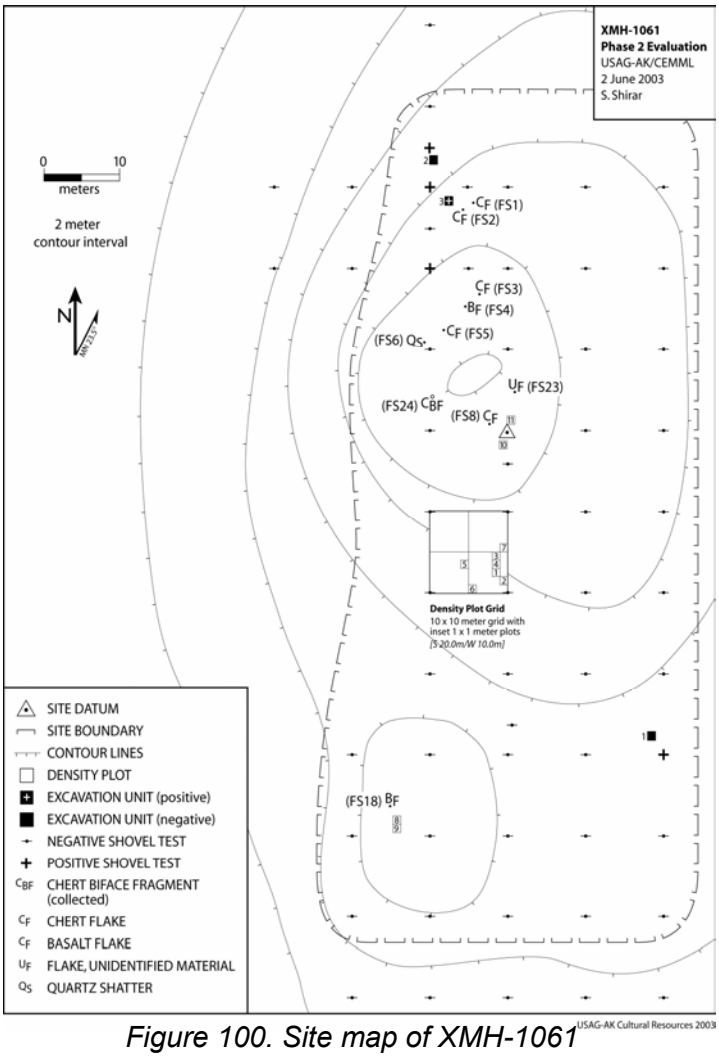

Figure 100. Site map of XMH-1061

Site XMH-1061 is a large lithic scatter with both surface and buried components. Both primary reduction of locally occurring material types and late stage lithic reduction or tool maintenance of non-local material types occurred at the site. With tool fragments and associated lithic debitage, non-locally occurring material types, and buried cultural material, XMH-1061 is in an excellent position to contribute to our knowledge of prehistoric land use patters. *In situ* artifacts and soil stratigraphy indicate that if datable material and diagnostic artifacts were collected they may be used to date human use of the site, potentially contributing to a broader regional context. Site XMH-1061 is an intact archaeological site with integrity and little evidence of previous impacts. The site is eligible for inclusion in the National Register of Historic Places under criterion D for its potential to yield information important in understanding the region's prehistory.

Table 5. Catalog of Artifacts from site XMH-1061

FS #	Artifact Description	Artifact Material	Location
1	tertiary flake	gray chert	surface
2	tertiary flake	gray chert	surface
3	tertiary flake	gray chert	surface
4	tertiary flake	basalt	surface
5	secondary flake	gray chert	surface
6	shatter	quartz	surface
7	tertiary flake	quartz	surface DP11
8	tertiary flake	gray chert	surface
9	core	unidentified	surface DP10

10	primary flake	unidentified	surface DP10
11	tertiary flake	gray chert	surface DP7
12	secondary flake	gray chert	surface DP3
13	tertiary flake	obsidian	surface DP4
14	tertiary flake	gray chert	surface DP1
15	tertiary flake	gray chert	surface DP2
16	shatter	quartz	surface DP5
17	tertiary flake	rhyolite	surface DP6
18	tertiary flake	basalt	surface
19	tertiary flake	quartz	surface DP8
20	tertiary flake	quartz	surface DP9
21	tertiary flake	quartz	surface DP9
22	tertiary flake	quartz	surface DP9
23	primary flake	unidentified	surface
24	point base	gray chert	surface
25	tertiary flake	basalt	ST N30/W10
26	tertiary flake	unidentified	ST S40/E20
27	tertiary flake	unidentified	ST N20/W10
28	tertiary flake	unidentified	ST N35/W10
29	tertiary flake	gray chert	TU#3 Lvl.4

XMH-1062

Determination: Not evaluated

Site XMH-1062 is located on a high glacial moraine overlooking a wide expanse, with unobstructed views to the south and west (Figure 101). The nearest existing water is a marsh approximately 600m to the east/southeast. Surface visibility is approximately 80 percent due to site disturbances including bulldozer tracks crossing the site, erosion, and sheet washing (heightened by the 1999 forest fires). The vegetation in and around the site consists of a mixed forest, dwarf birch, and forbs. A 4-wheel drive road is located to the north of the site

The site consists of one high quality obsidian unifacially retouched flake fragment and several rough quality tertiary quartzite and chert flakes. The retouched flake is high quality translucent obsidian with black specks. No shovel test pits were excavated and no density plots were calculated. No artifacts were collected.

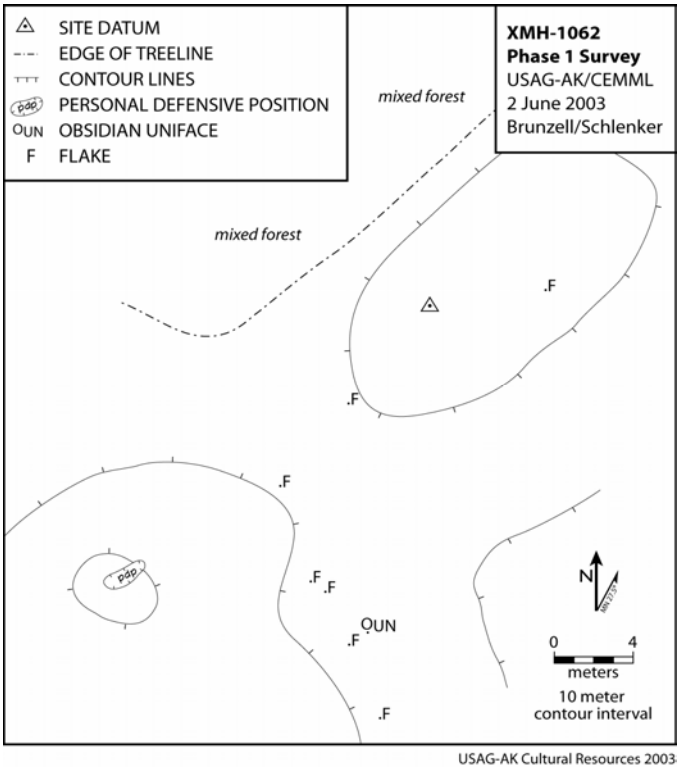

Figure 101. Site map of XMH-1062

Recommendations
Site XMH-1062 has initially been classified as a small lithic scatter containing one tool made of obsidian, a non-locally occurring material type. This site lies outside the APE for this proposed project and was not evaluated to determine eligibility for inclusion in the NRHP. If the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility.

XMH-1063
Determination: Not evaluated
Site XMH-1063 is located on a high point of a glacial moraine to the east/northeast of XMH-1062 and to the south/southwest of XMH-1067. The nearest known water is a marsh approximately 600m to the east/southeast. The site provides a 360^{o} unobstructed view of the surrounding terrain. One significant disturbance includes a road that bisects the site. Surface visibility was approximately 80 percent as a result of 1999 forest fires. The surrounding vegetation consists of needle leaf forest, moss, lichen, dwarf scrub and grasses

Site XMH-1063 consists of three tertiary gray chert flakes and one probable quartz flake core. A preliminary flake type analysis indicates late stage lithic reduction occurred at the site. However the presence of a flake core indicates that primary lithic reduction may have occurred at the site as well. No density plots were calculated and no artifacts were collected.

Recommendations
Site XMH-1063 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. This site lies outside the APE for this proposed project and was not evaluated to determine eligibility for inclusion in the NRHP. If the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility.

XMH-1064
Determination: Not evaluated
Site XMH-1064 is located in the lowlands and is not associated with any nearby glacial moraines. The nearest known water is a marsh approximately 1km to the southeast. There is no significant view of the surrounding landscape. Surface visibility is relatively high due to a 1999 forest fire. Vegetation consists of dwarf scrub, forbs, and grasses.

Site XMH-1064 consists of a gray/green chert flake core of good quality. The artifact is partially burned. No subsurface testing or density plots were conducted and no artifacts were collected.

Recommendations
Site XMH-1064 has initially been classified as an isolated find. This site lies outside the APE for this proposed project, and was not evaluated to determine eligibility for inclusion in the NRHP. If the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility.

XMH-1065
Determination: Not Eligible
Site XMH-1065 is located on a large moraine that is approximately 50m wide and 160m long (Figure 103). The side slopes are steep and the crest of the moraine is relatively flat. The moraine rises approximately 15m above the surrounding landscape. There is a large, heavily disturbed area on the northern portion of the moraine. This disturbance is a result of the road construction that exposed glacial till. The nearest water source is a lake located 1km to the

southeast. A forest fire in 1999 removed most vegetation from the surrounding area and the site now has an excellent view of the surrounding landscape. Donnelly Dome is visible to the south, a portion of the Alaska Range to the south and southwest, and the Granite Mountains to the southeast. The vegetation on the site is primarily dwarf birch, grasses, sedges, and some scattered forbs. Approximately 75 percent of the ground surface is devoid of vegetation and offers excellent visibility.

Figure 102. General view of XMH-1065, facing northeast

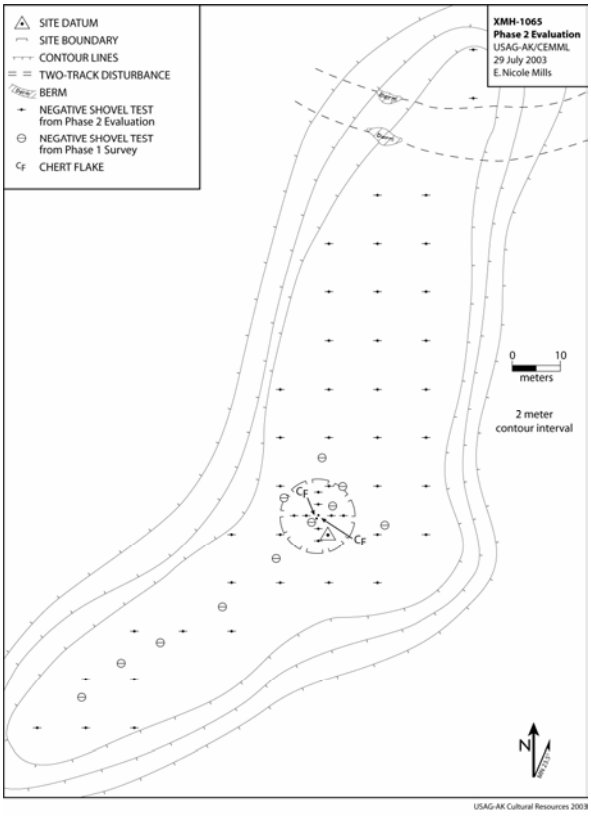

Figure 103. Site map of XMH-1065

Site XMH-1065 consists of two gray chert flakes found on the surface less than 30cm apart. The flakes were found in an area exposed by an uprooted spruce tree. A thorough investigation of the surface was conducted and no additional artifacts were found. When the site was first identified a total of 12 shovel tests were excavated at 10m intervals. Forty-seven more shovel tests were placed at the site during the evaluation phase, bringing the total number of shovel tests to 59. None of the shovel tests contained cultural material. Shovel tests were 30cm x 30cm and excavated at least 10cm into glacial till. Glacial till was encountered anywhere from the surface of the shovel tests to 30cm below the surface. The majority of shovel tests excavated at the site exhibited the same soil profile. A typical soil profile consisted of approximately 2cm of black loess representing soil affected by the 1999 forest fires. The black loess was underlain by 8cm of strong brown sandy loess. Directly beneath the strong brown sandy loess was strong brown loess/sand. Shovel tests were concluded upon encountering the glacial till.

Recommendations

Pedestrian survey and 59 shovel tests located only two flakes found on the surface. This finding suggests that XMH-1065 is a small lithic scatter. The paucity of cultural material leads to the conclusion that XMH-1065 does not contain enough information that is important to our understanding of the regions prehistory or history and is not eligible for inclusion in the National Register of Historic Places.

XMH-1066

Determination: Not Eligible

Site XMH-1066 is located on a hilltop that was burned by forest fires in 1999 (Figure 105). The burn and wind erosion has increased surface visibility. The site has a 360° unobstructed view of the surrounding terrain. The nearest water source is 900m away, but no water sources are visible from site. Vegetation consists of a mixed forest, low scrub and forbs.

Figure 104. General view of XMH-1066, facing south.

Site XMH-1066 consists of six flakes found on the surface of the southeast slope of a hill. Artifacts found include one tertiary black chert flake, one tertiary black basalt flake, and one tertiary gray-brown chert flake, none of which were collected. Preliminary flake type analysis indicates late stage lithic reduction occurred at the site. Preliminary subsurface testing did not produce any artifacts.

Thirty-two shovel tests were placed at the site in the evaluation phase. None of the tests yielded cultural material. Shovel tests were 30cm x 30cm and were excavated at least 10cm into glacial till. The majority of shovel tests excavated at the site exhibited the same soil profile. A typical soil profile consisted of approximately 2cm of black loess representing soil affected by 1999 forest fires. The black loess was underlain by 4cm of dark brown loess. Directly beneath the dark brown sandy loess was tan loess. Shovel tests were abandoned upon encountering the glacial till.

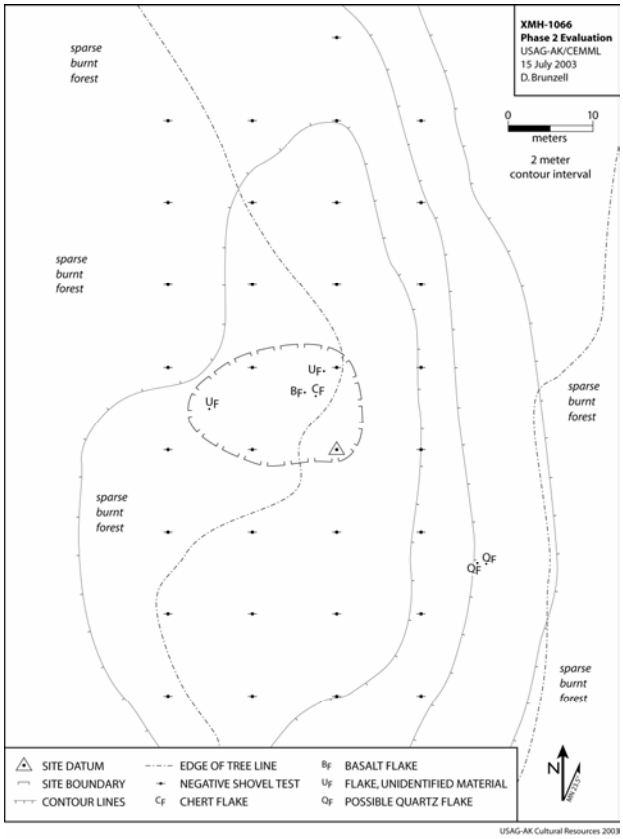

Figure 105. Site map of XMH-1066

Recommendations

Pedestrian survey and 32 shovel tests resulted in the location of six flakes found on the surface. This finding suggests that XMH-1066 is a small lithic scatter. The paucity of cultural material leads to the conclusion that XMH-1066 does not contain enough information that is important to our understanding of the prehistory or history of the region and is not eligible for inclusion in the National Register of Historic Places.

XMH-1067

Determination: Not evaluated

Site XMH-1067 is located on a glacial moraine that provides a 360° unobstructed view of the surrounding terrain (Figure 106). The nearest existing water is a marsh approximately 600m to

Figure 106. General view of XMH-1066, facing west.

the southeast. Forest fires in 1999 cleared much of the native vegetation and there is approximately 100 percent visibility. Vegetation consists of a mixed forest with moss, lichen, and forbs. Natural quartz appears to be outcropping at the top of the moraine. A two-track 4-wheel drive road provides easy access to the site, although no modern disturbances are apparent. Site XMH-1067 consists of two tertiary chert flakes and one possible quartz flake. Preliminary flake type analysis indicates late stage lithic reduction occurred at the site. No shovel tests were excavated and no artifacts were collected.

Recommendations

Site XMH-1067 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. This site lies outside the APE for this proposed project and was not evaluated to determine eligibility for inclusion in the National Register of Historic Places. If the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility.

XMH-1068

Determination: Not evaluated

Site XMH-1068 is located on a glacial moraine and has a 180° unobstructed view of the surrounding terrain to the south-southwest (Figure 107). The nearest known water source is a marsh approximately 650m to the southeast. Surface visibility was approximately 70 percent due to a 1999 forest fire. Vegetation consists of a mixed forest with moss, lichen, dwarf scrub and forbs. A nearby two-track 4-wheel drive road makes the site easily accessible, and some evidence of military activity (shells, personal defensive positions, etc.) is apparent.

Figure 107. General view of XMH-1068, facing southwest

Site XMH-1068 consists of three tertiary chert flakes (gray, tan, and red/white respectively) found on the surface. No shovel test pits were excavated and no artifacts were collected. Preliminary flake type analysis indicates late stage lithic reduction occurred at the site.

Recommendations

Site XMH-1068 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. This site lies outside the APE for this proposed project and was not evaluated to determine eligibility for inclusion in the National Register of Historic Places. If the

APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility.

XMH-1069

Determination: Not evaluated

Site XMH-1069 is located on a glacial moraine and has a 360° unobstructed view of the surrounding terrain (Figure 108). The nearest known water source is a marsh approximately 650m to the southeast. Surface visibility at the site is high due to a 1999 forest fire. Vegetation consists of a mixed forest with moss, lichen, dwarf scrub and grasses. Close proximity to a two-track 4-wheel drive road makes the site easily accessible, though no major disturbances are apparent.

Figure 108. General view of XMH-1069, heading south

Site XMH-1069 consists of three tertiary chert flakes. Of these, the largest is gray, of rough quality, and measures 5.5cm in height, 5cm in width, and is .5cm thick. The other chert flakes are tan and gray, respectively. Preliminary flake type analysis indicates late stage lithic reduction occurred at the site. No shovel tests were excavated and or density plots were calculated.

Recommendations

Site XMH-1069 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. This site lies outside the APE for this proposed project and was not evaluated to determine eligibility for inclusion in the NRHP. If the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility.

XMH-1070

Determination: Not evaluated

Site XMH-1070 is located on a broad, gradually rising southeast/northwest trending ridge. The site overlooks a large boggy area to the southwest which may be an old lake bed (Figure 109). There is a clear view of the Granite Mountains to the southeast, the Alaska Range to the southwest, and Donnelly Dome to the south. The nearest water source is a lake located approximately 500m to the southeast. Surface visibility at the site is estimated at 10-20 percent. Vegetation consists of needle leaf forest, moss, lichen, and dwarf scrub.

Figure 109. General view of XMH-1070, facing south

Site XMH-1070 consists of two tertiary basalt flakes found during systematic shovel testing. Two shovel test transects were run, with shovel test units spaced at 10m intervals. A total of six 30cm x 30cm shovel tests were excavated to glacial till. One positive shovel test contained two flakes at a depth of 0-5cm. The shovel test was 25cm deep, with three distinct layers. Between

0-5cm was the organic layer, from 5-12cm was reddish brown loess, and from 12-25cm was glacial till. Preliminary flake type analysis indicates late stage lithic reduction occurred at the site. The artifacts were collected, but density plots were not calculated.

Recommendations
Site XMH-1070 has been classified as a buried site that could potentially contain more cultural material. This site lies outside the APE for the proposed project and was not evaluated to determine eligibility for inclusion in the National Register of Historic Places. If the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility.

XMH-1071
Determination: Not evaluated
Site XMH-1071 is located on the apex of a glacial moraine and has a 360° unobstructed view of the surrounding terrain (Figure 110). The nearest water source is a marsh approximately 250m to the southwest. Another small lake is located approximately 550m to the northwest. Surface visibility is approximately 10 percent and vegetation consists of a needle leaf forest, moss, lichen, and dwarf scrub.

Figure 110. General view of XMH-1071, facing west

Site XMH-1071 consists of a single tertiary green chert flake yielded from a positive shovel test. A total of two 30cm x 30cm shovel tests were excavated to glacial till. The one positive shovel test contained one flake at a depth of 13-26cm. The shovel test was 31cm deep, with four distinct layers; 0-8cm is the organic layer, 8-13cm is brown loess, 13-26 cm is yellow/brown sandy loess and 26cm and below is glacial till. The artifact was collected, but no density plots were calculated.

Recommendations
Site XMH-1071 has been classified as a buried site that could potentially contain more cultural material. This site lies outside the APE for the proposed project, and was not evaluated to determine eligibility for inclusion in the National Register of Historic Places. If the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility.

XMH-1074
Determination: Not evaluated
Site XMH-1074 is located on a high point of a north/south running glacial moraine and has a 360° unobstructed view of the surrounding terrain (Figure 111). A lake is located approximately 300m to the south. Surface visibility was approximately 60 percent as a result of a 1999 forest fire. Vegetation consists of a mixed forest with a ground cover of low scrub, moss and lichen.

Site XMH-1074 consists of three rhyolite flakes, two tertiary and one secondary, which were observed on the ground surface. Preliminary flake type analysis indicates later stages lithic reduction occurred at the site. No artifacts were collected and no density plots were calculated. Subsurface examinations have yet to be conducted.

Figure 111. General view of XMH-1074, facing north

Recommendations
Site XMH-1074 has initially been classified as a small lithic scatter where later stages lithic reduction occurred. This site lies outside the APE for this proposed project and was not evaluated to determine eligibility for inclusion in the NRHP. If the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility.

XMH-1075
Determination: Not evaluated
Site XMH-1075 is located on the south side of a north/south running glacial moraine (Figure 113). The site has a south/southwest view overlooking two lakes that are approximately 150m to the south and has a clear view of Donnelly Dome and the Alaska Range. The site has approximately 50 percent surface visibility and is surrounded by a mixed forest with a ground cover of low scrub, moss and lichen.

Site XMH-1075 consists of five tertiary basalt flakes located on the ground surface. Three density plots were placed on the site and artifact density is calculated as being up to one artifact per-square meter. A flake type analysis indicates late stage lithic reduction occurred at the site. No shovel tests were excavated and no artifacts were collected.

Figure 112. General view of XMH-1075, facing south

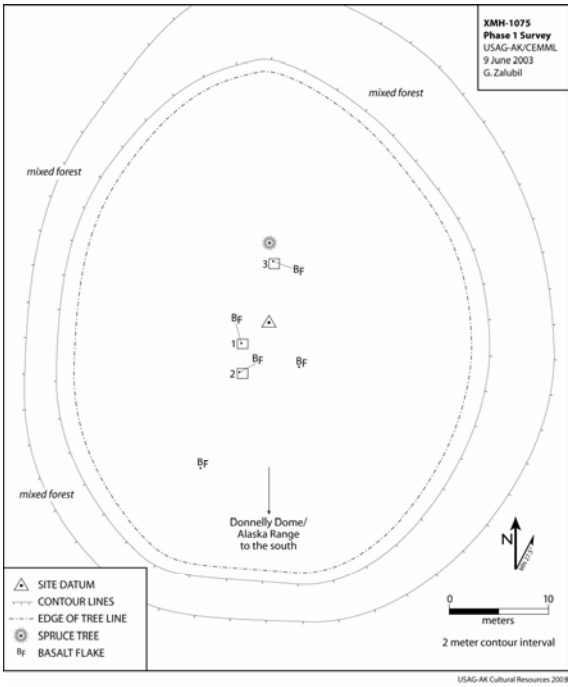

Figure 113. Site map of XMH-1075

Recommendations
Site XMH-1075 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. This site lies outside the APE for this proposed project and was not evaluated to determine eligibility for inclusion in the National Register of Historic Places. If the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility.

XMH-1076
Determination: Not evaluated
Site XMH-1076 is located on a southeast/northwest running glacial moraine with an unobstructed view to the south. The site is approximately 200m from a small un-named pond to the southwest. Surface visibility was high due to sparse ground vegetation, which consists of a mixed forest with dwarf scrub and grasses.

Site XMH-1076 consists of a single primary chert flake located on the surface. A total of 12 shovel tests were excavated along two parallel transects, 10m apart. Shovel tests were 30cm x 30cm and were from 10-20cm deep and excavated to glacial till. All shovel tests were negative. No artifacts were collected and no density plots were calculated.

Recommendations
Site XMH-1076 has initially been classified as an isolated find. This site lies outside the APE for this proposed project and was not evaluated to determine eligibility for inclusion in the NRHP. If the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility.

XMH-1077
Determination: Not evaluated
Site XMH-1077 is located on the crest of an east/west running ridge (Figure 115). There is a lake located 100m to the south. The site has an unobstructed view of the lake to the south and of the Alaska Range. The site has low surface visibility due to moss and lichen ground cover. A mixed forest with low scrub surrounds the site.

Figure 114. General view of XMH-1077, facing north

Site XMH-1077 consists of two tertiary chert flakes found in a shovel test pit. A total of four shovel tests were excavated to glacial till. However, only one shovel test unit contained cultural material. Shovel test four contained two tertiary chert flakes found in a 30cm x 30cm shovel test at an approximate depth of 15cm. This shovel test was 50cm deep, with four distinct layers; 0-7cm is the organic layer, 7-18cm is a loess, 18-46cm is a loess, and 46-50cm is glacial till. The artifacts were collected, but no density plots were calculated.

Recommendations
Site XMH-1077 has been classified as a buried site that could potentially contain more cultural material. This site lies outside the APE for this proposed project and was not evaluated to determine eligibility for inclusion in the NRHP. If the APE is moved by later design alteration, or

if further projects are proposed in the area, the site should be evaluated to determine eligibility.

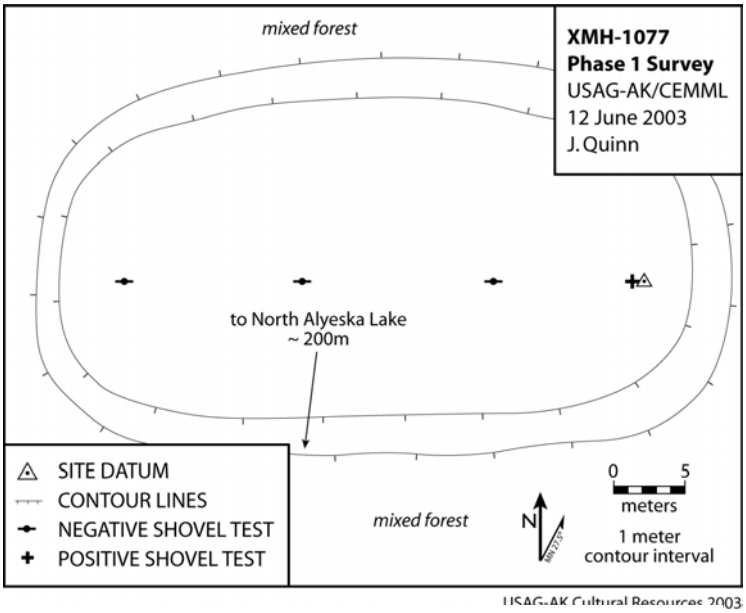

Figure 115. Site map of XMH-1077

XMH-1078

Determination: Not evaluated

Site XMH-1078 is located on an east/west running glacial moraine and has a 360° unobstructed view of the surrounding terrain. The nearest known water source is a dry lakebed approximately 650m to the south. Surface visibility is about 70 percent and vegetation consists of a broad leaf forest, dwarf scrub, forbs and grasses.

Site XMH-1078 consists of three flakes found on the surface; one tertiary black and gray basalt flake, one tertiary chert flake, and one primary greenish gray flake. Preliminary flake type analysis indicates both primary and late stage lithic reduction occurred at the site. No artifacts were collected, no map was made, no density plots were calculated and no shovel tests were excavated.

Recommendations

Site XMH-1078 has initially been classified as a small lithic scatter where both primary and late stage lithic reduction occurred. This site lies outside the APE for this proposed project and was not evaluated to determine eligibility for inclusion in the NRHP. If the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility.

Figure 116. General view of XMH-1078, facing south

4.4.2 Cultural Resources in the Donnelly Drop Zone Alterative

Two prehistoric sites are located in the Donnelly Drop Zone alterative for the Cold Weather/Automotive Test Complex (XMH-1072 and XMH-1073). Both sites are located on a bluff that overlooks a creek floodplain. This alternative will not be impacted by this project. The preferred alternative for the Cold Weather/Automotive Test Complex is in the Jarvis West Study Area (Figure 117), to the east of Jarvis Creek and immediately south of the Strategic Missile Defense Command missile field on Fort Greely.

Following is a description of each recorded site in the Donnelly Drop Zone proposed project area.

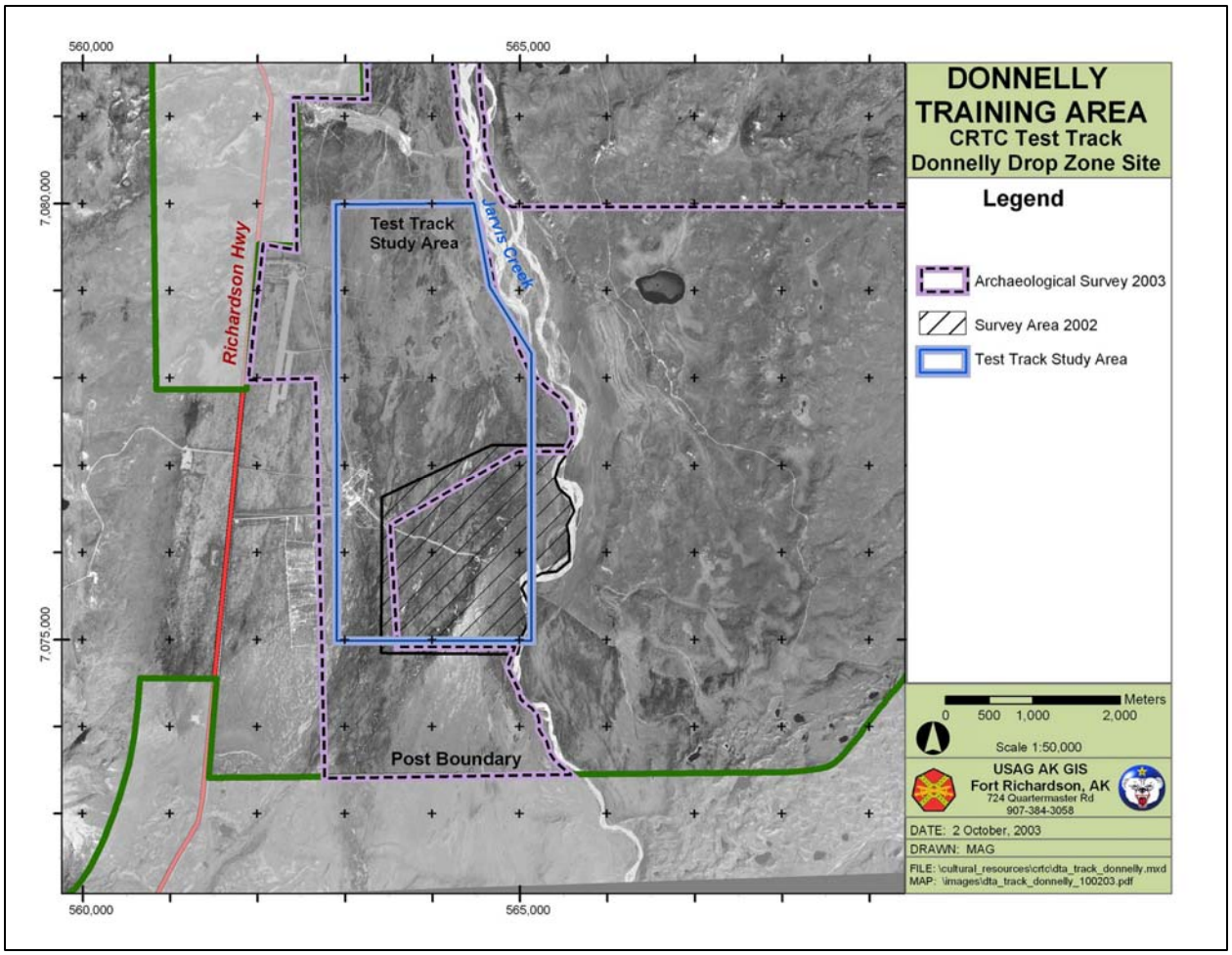

Figure 117. Project area, Donnelly Drop Zone alternative

XMH-1072

Determination: Not evaluated

Site XMH-1072 is located on a bluff that extends for 2km to the north and 3km to the south. The bluff is elevated 15m above the surrounding terrain. A creek is approximately 400m to the east and no lakes exist in the area. Some hills are visible on the far side of the creek. The creek itself is not visible from the bluff. The bluff provides the only good vantage point in the immediate area. Site XMH-1073 is located 1km to the south on the same bluff. The edge of the bluff has experienced a small amount of wind erosion. There is little surface visibility at the site and vegetation in the area consists of a mixed forest with moss, lichen, and dwarf scrub

Figure 118. General view of XMH-1072, facing north

Site XMH-1072 consists of one tertiary gray chert flake and two secondary quartz flakes found on the surface. All artifacts were observed within a 10m area on the bluff edge. Flake type analysis indicates later of stages lithic reduction occurred at the site. No artifacts were collected and subsurface examinations have yet to be conducted.

Recommendations

Site XMH-1072 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. This site lies outside the APE for this proposed project and was not evaluated to determine eligibility for inclusion in the NRHP. If the APE is moved by later design alteration, or if further projects are proposed in the area, the site should be evaluated to determine eligibility.

XMH-1073

Determination: Not evaluated

Site XMH-1073 is located on a bluff 3km to the north and 2km to the south and overlooks a creek (Figure 120). The bluff is elevated 15m above the surrounding terrain that drops off suddenly to the east. The creek is approximately 400m to the east and no lakes exist in the area. Some hills are visible on the far side of the creek, but the creek itself is not visible from the bluff. The bluff provides the only good vantage point in the immediate area.

Site XMH-1072 is located 1km to the north on the same bluff. The edge of the bluff has experienced a small amount of wind erosion but there was little surface visibility at the site. Vegetation consists of a mixed forest with moss, lichen, and dwarf scrub

Figure 119. General view of XMH-1073, facing north

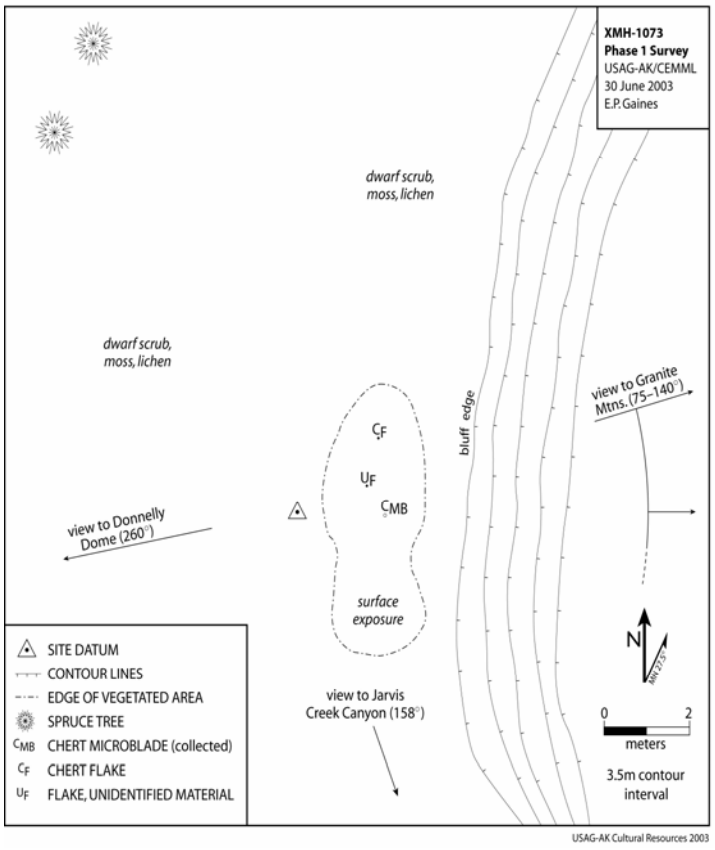

Figure 120. Site map of XMH- 1073

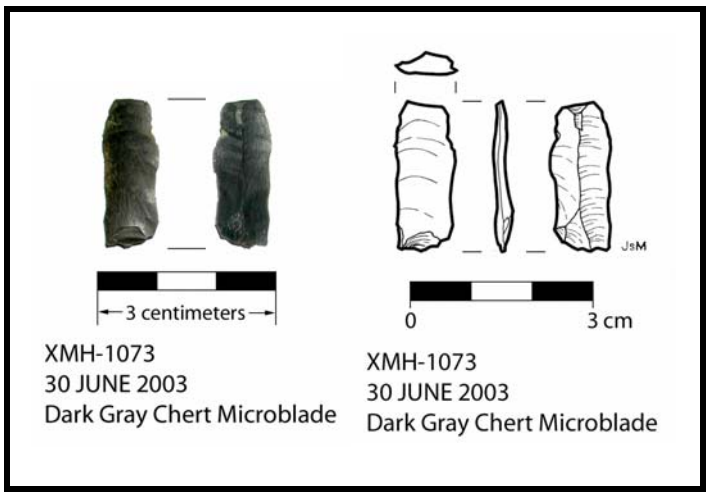

Figure 121. Microblade from XMH-1073

Site XMH-1073 consists of one microblade and two flakes identified on the surface. The gray chert microblade (which was collected) weighs 0.49g and measures 24.3mm in height and 9.6mm in width (Figure 121). The other two artifacts at the site include a secondary tan chert flake and one tertiary gray-banded chert flake with multiple flake scars. These artifacts were observed within a 2m area on the bluff edge. Subsurface examinations have yet to be conducted at the site.

Recommendations

Site XMH-1073 has initially been classified as a small lithic scatter containing microblade technology. This site lies outside the APE for this proposed project and was not evaluated to determine eligibility for inclusion in the National Register of Historic Places. If the APE is moved by later design alteration, or if further projects are proposed in the area the site should be evaluated to determine eligibility.

4.5 Battle Area Complex (BAX) Firing Fan

USAG-AK has proposed a Battle Area Complex (BAX) range development project on Army lands at Ft. Wainwright's Donnelly Training Area. The BAX is designed for gunnery training and would meet qualification requirements of crew-served, vehicle-mounted weapon systems. The BAX range would also support dismounted infantry platoon tactical live-fire operations either independently of, or simultaneous with, supporting vehicles. Units would acquire skills needed to detect, identify, engage and defeat stationary and moving targets in a tactical array. Primary features of the BAX include course roads with crossover capability, stationary armor targets, moving armor targets, stationary infantry targets, moving infantry targets, machine gun

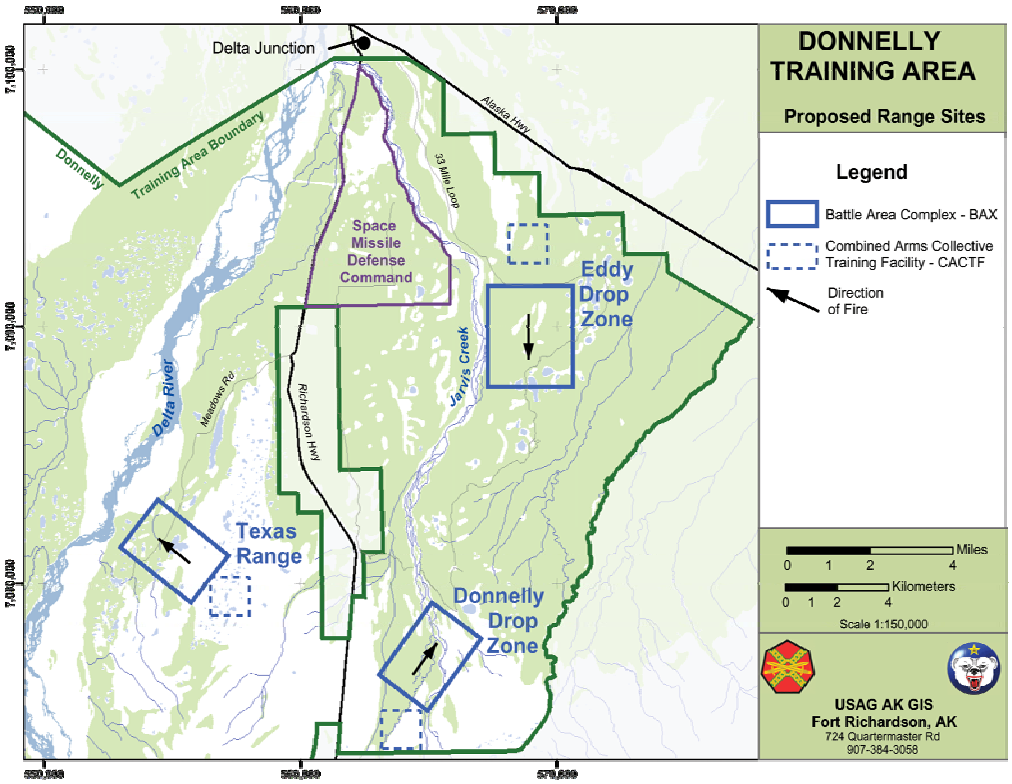

Figure 122. Map of the three BAX alternatives

bunkers and breaching obstacles. All targets would be fully automated and the event-specific target scenario would be computer-driven from the control facility. In addition to the range, the BAX would include an after-action review facility, ammunition breakdown building, ammunition loading dock, operations and storage building, arctic latrines, bleacher enclosure, bivouac and unit staging area, covered mess area, building information systems, electric service, water and septic system, storm drainage, and general site improvements.

There were three alternatives considered for the sighting of this project. Figure 122 shows the three general areas; Texas Range, Eddy Drop Zone, and Donnelly Drop Zone. Survey for the construction footprints of the three BAX alternatives was conducted in 2002 (Hedman et al. 2003). The focus of the 2003 survey was the firing fans or surface danger zone for the alternatives. The firing fan of the Texas Range alternative was located in an active impact area and was not surveyed do to safety concerns. The firing fan of the Eddy Drop Zone alternative is the preferred alternative and received the majority of the resources for this survey. However,

the Eddy Drop Zone (firing south) and Donnelly Drop Zone (firing north) firing fan alternatives overlap, and therefore a large portion of the Donnelly Drop Zone alternative was also completed.

Survey and Field Methods

During the summer of 2003 an archaeological survey crew of sixteen archaeologists employed by CEMML conducted a survey of the proposed range construction areas (excluding Texas Range).

Parallel pedestrian transects spaced at 20m were walked systematically across the APE and surrounding area. Transect survey units were partitioned according to existing roads and trails where possible. When existing roads did not provide for practical unit boundaries, a one square kilometer work unit was defined. Systematic sub-surface shovel testing was undertaken in areas considered to have high probability for containing archaeological sites. Areas that were shovel tested included but were not limited to, landforms affording a view of surrounding terrain, lake margins, ridgelines, terrace edges, hilltops, benches adjacent to steeper slopes, and the bluffs over looking creeks. Shovel tests were typically 30cm x 30cm and excavated into glacial till or consolidated outwash. All soil removed was screened through ¼" hardware cloth.

Results

Evaluations of the sites identified will likely take place in 2005 and 2006, after one of the firing fan alternatives for the BAX is chosen.

Cultural Resources

One hundred and four prehistoric sites have been recorded within the proposed Eddy Drop Zone firing fan alternative area. Four sites (XMH-277, XMH-278, XMH-284 and XMH-292) were recorded during a 1979 survey (Holmes 1979) and fifteen sites (XMH-880, XMH-881, XMH-883, XMH-884, XMH-886, XMH-887, XMH-888, XMH-889, XMH-890, XMH-891, XMH-892, XMH-894, XMH-920, XMH-928, and XMH-929) were recorded during surveys conducted by the CEMML in 2002 (Hedman et al. 2003). More information on the sites identified in 2002 can be found in Hedman et al. 2003. Eighty-five new sites were recorded during the 2003 CEMML survey for this project. The following is a description of each site in the vicinity of the Eddy Drop Zone firing fan alternative that was recorded in both 1979 and 2003.

XMH-1084

Determination: Not evaluated

This site is located on a north/south trending glacial moraine. The site has a 360° unobstructed view of the surrounding terrain. The nearest known water source is a marsh located approximately 200m to the northwest. Surface visibility on the site is approximately 40 percent. The ground surface of the site is vegetated primarily by dwarf scrub, moss, lichen, and forbs, with several barren areas.

Figure 123. General view of XMH-1084, facing north

Site XMH-1084 consists of two tertiary basalt flakes and one tertiary rhyolite flake found on the surface. Preliminary flake type analysis indicates late stage lithic reduction occurred at the site. Subsurface examinations have yet to

be conducted. No artifacts were collected and no density plots were calculated.

Recommendations
Site XMH-1086 has initially been classified as a small lithic scatter where later stages of lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1085
Determination: Not evaluated
This site is located on a high point at the south end of a north-south trending ridge. The site has an unobstructed view to the east, south and west. No water sources are visible in the immediate area, but a lake is located approximately 600m to the north. Due to heavy ground cover across the site, surface visibility is minimal. The vegetation consists primarily of tall scrub and forbs.

Figure 124. General view of XMH-1085, facing west

Site XMH-1085 consists of one dark-gray tertiary chert flake found in a 30cm x 30cm shovel test at a depth of 10-35cm. The shovel test had four distinct layers; 0-5 cm was the organic root mat, 5-9cm was a reddish orange silty soil, 9-14cm was a silty sandy soil with some gravels, and 14-31cm was an orange silty sandy soil with a high density of gravels that appears to be glacial till. The artifact was collected.

Recommendations
Site XMH-1085 has been classified as a buried site that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1086
Determination: Not evaluated
Site XMH-1086 is located on a high point at the southern end of a north/south running ridge (Figure 126). The site is elevated approximately 20m above the surrounding terrain with an unobstructed view to the south, east and west. No lakes are visible in the immediate vicinity, but a lake is located approximately 700m to the north. Due to wind erosion there is a moderate degree of surface visibility. The surface of the site is vegetated primarily by tall scrub and forbs, with several barren areas.

Site XMH-1086 consists of 10 pieces of lithic debitage found on the southern slope of the high point including one dark gray chert tertiary flake and 9 quartz flakes. Three density plots were placed at the site and artifact density is calculated as being up to 3.33 artifacts per-square meter. A flake type analysis indicates later stages of lithic reduction occurred at the site.

Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1086 has initially been classified as a small lithic scatter where later stages of lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Figure 125. General view of XMH-1086, facing south

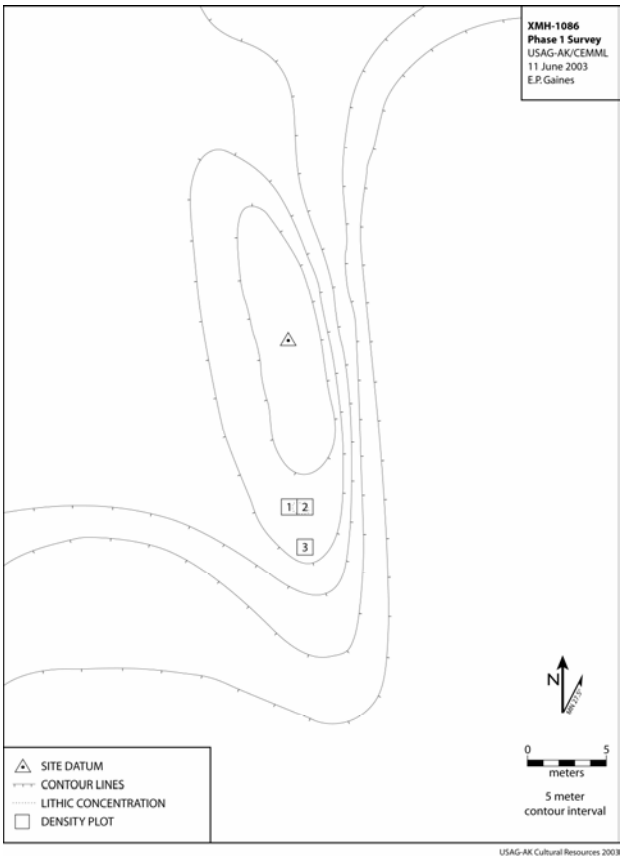

Figure 126. Site map of XMH-1086

XMH-1087
Determination: Not evaluated
This site is located on a high point at the south end of a north/south trending ridge that stands 5m above the surrounding terrain. The site affords a 180° unobstructed view of the surrounding terrain to the east and south. No lakes are visible from the site, but a lake is located 700m to the north. Due to heavy ground cover, surface visibility is minimal. Vegetation at the site consists primarily of tall scrub and forbs.

Site XMH-1087 consists of a blade fragment found in a shovel test pit. A total of two shovel tests were excavated to glacial till but only one produced cultural material. Shovel test pit one contained one dark-gray chert blade fragment that measures 42mm in length, 19mm in width, and weighs 5.5g. The 30cm x 30cm shovel test was 30cm deep with three distinct layers; 0-5cm

Figure 127. General view of XMH-1087, facing east

was the organic layer, 5-13cm was a red brown loess, and 13-34cm was an orange brown sandy silty soil containing glacial till.

Recommendations
Site XMH-1087 has been classified as a buried site that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1088
Determination: Not evaluated
Site is located on a high point at the south end of a north/south trending ridge elevated 5m above the surrounding terrain. Site has a 180° unobstructed view of the surrounding terrain to the east and south. No lakes are visible from the site, but a lake is located less than 600m to the north. Due to heavy ground cover, surface visibility is minimal in the immediate area. The ground surface of the site is vegetated primarily by dwarf scrub and forbs.

Figure 128. General view of XMH-1088, facing southwest

Site XMH-1088 consists of one piece of green chert shatter found in a shovel test pit. A total of two shovel tests were excavated to glacial till but only one produced cultural material. Shovel test two contained one piece of green chert shatter recovered from a depth of 5-17cm below the surface and which measures 19mm in length, 17mm in width, and weighs 2.75g. The 30cm x 30cm shovel test was 30cm deep with three distinct layers; 0-5cm was the organic layer, 5-20cm was a moderately compacted brown silt, and below this was a loosely compacted sandy, silty soil with a high density of gravels.

Recommendations
Site XMH-1088 has been classified as a buried site that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1089
Determination: Not evaluated
Site XMH-1089 is located on the top of a high point on a northeast/southwest trending ridge (Figure 130). The site is elevated only 10m above the surrounding terrain. The site affords approximately a 180° unobstructed view of the surrounding terrain to the south and east. Two other sites are located on the same landform; XMH-1090 is 150m to the southwest and XMH-1091 is 300m to the southwest. No water sources are visible in the immediate area, but a small unnamed lake is located approximately 600m to the west. Due to wind erosion and recent episodes of forest fires, the site has a high degree of surface visibility. The surface of the site is vegetated primarily by dwarf scrub and forbs, with several large barren areas. The site has also

been impacted by military activity. It has been cleared of vegetation and the remains of a small temporary structure are present.

Site XMH-1089 consists of one basalt biface fragment and one gray chert flake. The biface fragment is 5.0cm long, 3.0cm wide, and weighs approximately 14.0g. No artifacts were collected and no subsurface testing has been conducted.

Recommendations
Site XMH-1089 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Figure 129. General view of XMH-1089, facing east

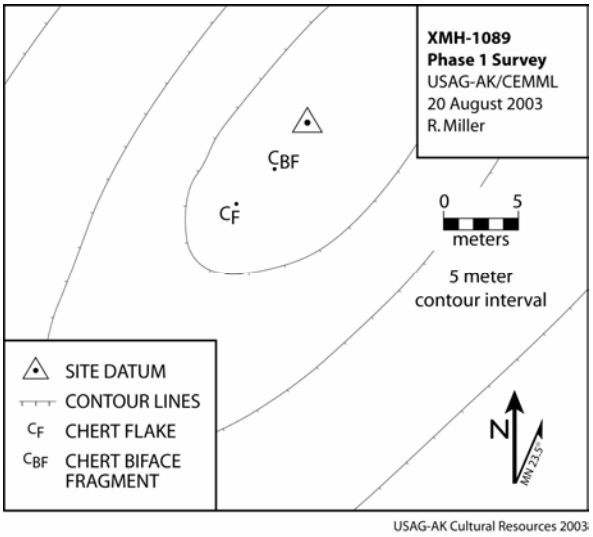

Figure 130. Site map of XMH-1089

XMH-1090
Determination: Not evaluated
Site XMH-1090 is located on the top of a high point on a northeast/southwest trending ridge. The site is elevated 10m above the surrounding terrain. Numerous other hills are present to the southwest and northeast of the site, with large expanses of muskeg to the east and south. The site affords a 180° unobstructed view of the surrounding terrain to the south and east. No water sources are visible from the site, but a small unnamed lake is located approximately 500m to the west/northwest. There is approximately 50 percent surface visibility with vegetation consisting of low scrub, moss, lichen, and forbs. The site has also been minimally disturbed by military activity.

Site XMH-1090 consists of a small gray chert flake found in a shovel test pit. A total of three shovel tests were excavated to glacial till but only one produced cultural material. Shovel test one was 30cm x 30cm, with the chert flake found between 3-10cmbs. Soils in the shovel test consisted of a gray silt loam from 0-3cmbs, a light brown silt from 3-17cmbs, and an orange/brown silt with a moderate amount of gravels, which was considered to be glacial till.

Figure 131. General view of XMH-1090, facing west

Recommendations
Site XMH-1090 has been classified as a buried site that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1091
Determination: Not evaluated
Site XMH-1091 is located on top of a high point on a northeast/southwest trending ridge. The site is elevated 10m above the surrounding terrain to the south and gradually descends in all other directions. Numerous other hills are present to both the southwest and northeast of the site, with large expanses of muskeg to the east and south. The site has an approximately 180° unobstructed view of the surrounding terrain to the south and east. No water sources are visible in the immediate area, but a small unnamed lake is located approximately 500m to the northwest. Due to wind erosion and recent episodes of forest fire, a moderate amount of surface visibility was observed at the site. The surface of the site is vegetated primarily by low scrub, moss, lichen and forbs.

Figure 132. General view of XMH-1091, facing east

Site XMH-1091 consists of four gray chert tertiary flakes found on the surface, all of which appear to be of the same material. Preliminary flake type analysis indicates later stages of lithic reduction occurred at the site. No primary or secondary flakes were located. Subsurface examinations have yet to be conducted. No artifacts were collected and no density plots were calculated.

Recommendations
Site XMH-1091 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1092
Determination: Not evaluated
Site XMH-1092 is located on a narrow northwest/southeast trending ridge. Visibility is limited due to tree cover. There is a very small, nearly dry pond visible approximately 30m to the southwest. A larger lake is located approximately 500m to the southwest. There is thick ground cover and little surface visibility at the site.

Site XMH-1092 consists of seven tertiary chert flakes found in a shovel test pit. A total of two 30cm x 30cm shovel tests were excavated to glacial till. One positive shovel test contained seven tertiary chert flakes, one tertiary basalt flake, and one tertiary flake of an unidentified material at a depth of 15-35cmbs. The shovel test was 55cm deep, with four distinct layers; 0-5cm is the organic layer, 5-15cm is a dark yellowish brown loess, 15-35cm is a light yellowish

brown loess, and 35-55cm is glacial till. The artifacts were collected, but no density plots were calculated.

Recommendations
Site XMH-1092 has been classified as a buried site that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Figure 133. General view of XMH-1092, facing south

XMH-1093
Determination: Not evaluated
Site XMH-1093 is located on a small, narrow north/south trending ridge. The site has a 360° unobstructed view of the surrounding terrain. The Alaska Range is visible to the southwest and Donnelly Dome is visible to the south, but the Granite Mountains are unobstructed by a prominent ridge to the east. The nearest water source is a small, unnamed lake located 1km to the northeast. The surface of the site is vegetated primarily by low scrub, moss, and lichen, with surface visibility estimated at 10 percent.

Figure 134. General view of XMH-1093, facing south

Site XMH-1093 consists of one basalt flake found in a shovel test pit. A total of four 30cm x 30cm shovel tests were excavated to glacial till. The one positive shovel test contained one tertiary basalt flake found at a depth of 20-25cm. The shovel test was 45cm deep with four distinct layers; 0-6cm is the organic layer, 6-21cm is dark yellow brown loess, 21-38cm is dark red brown loess, and 38-45cm is glacial till. No density plots were calculated and no artifacts were collected.

Recommendations
Site XMH-1093 has been classified as a buried site that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1094

Determination: Not evaluated

Site XMH-1094 is located on a northeast/southwest trending ridge with 33 Mile Loop Trail (33MLT) running across the middle of it (Figure 136). Donnelly Dome is visible to the southwest and the Granite Mountains can be seen to the east. The nearest water source is a lake located approximately 1.5km to the southwest. The surface of the site is vegetated primarily by low scrub, forbs, grasses and sedges, with several barren areas scattered around. Surface visibility is approximately 75 percent as a result of 33MLT running the length of the ridge.

Figure 135. General view of XMH-1094, facing west

Site XMH-1094 consists entirely of one gray chert uniface fragment found on the surface of 33MLT. The uniface is 43.02mm long, 32.35mm wide, and weighs 10.20g. The artifact was collected because it was in a roadway. No density plots were calculated.

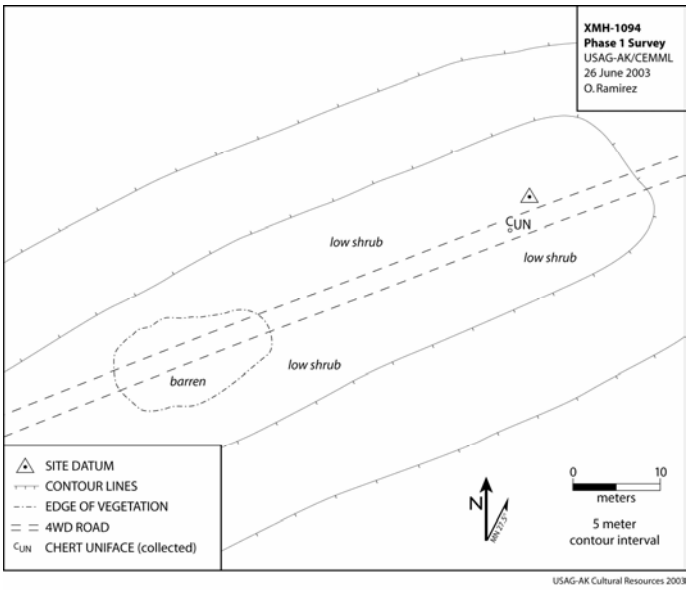

Figure 136. Site map of XMH-1094

Recommendations

Site XMH-1094 has been classified as an isolated find, but the site could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1095

Determination: Not evaluated

Site XMH-1095 is located on a small rise elevated approximately 5m above the surrounding terrain (Figure 138). The site has an approximately 180° degree unobstructed view to the southeast with a view of Granite Mountain. To the east of the site is a low, swampy area that contains some small patches of muskeg. The closest water source to the site is a small lake located approximately 1km to the northwest. The ground surface in and around the site is not

visible due to vegetation. The majority of the area is covered with sapling birch intermingled with a moderate amount of deadfall. The ground surface was covered with dwarf scrub, moss, and lichen.

Site XMH-1095 consists of two dark-gray chert flakes found in a shovel test pit. A total of three shovel tests were excavated at the site, one of which yielded cultural materials. Shovel test one contained two chert flakes found approximately 6-12cm below the surface. The excavation of shovel tests at the site was ceased upon encountering glacial till. No density plots were calculated.

Figure 137. General view of XMH-1095, facing east

Recommendations
Site XMH-1095 has been classified as a buried site that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

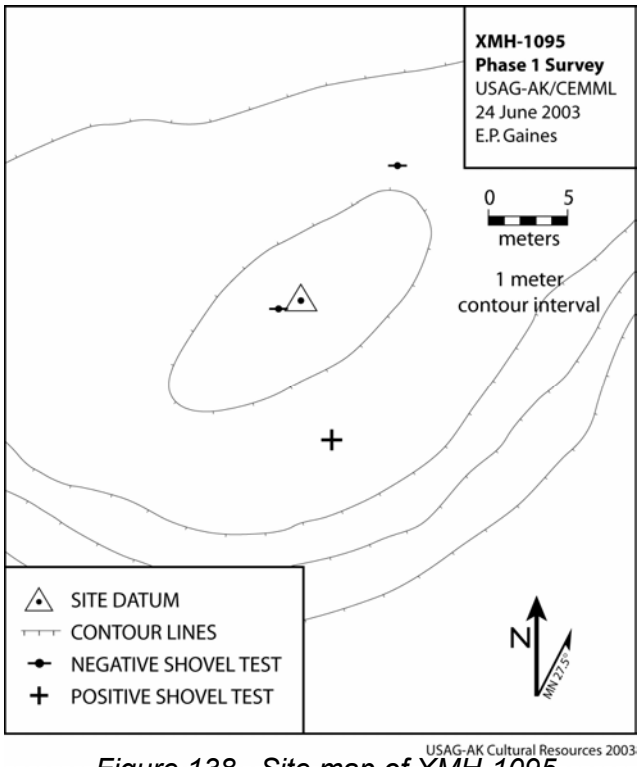

Figure 138. Site map of XMH-1095

XMH-1096
Determination: Not evaluated
Site XMH-1096 is located on top of a small isolated hill. The hilltop is approximately 25m in diameter and is elevated 10-15m above the surrounding terrain. A 2km or longer southeast/northwest running ridge can be seen to the southeast. The site has a 360° unobstructed view of the surrounding terrain and has good views of the Granite Mountains. No lakes are visible in the immediate area, but several lakes are located approximately 1km to the southwest. Due to wind erosion and recent episodes of forest fires, the site has a high degree of surface visibility.

Site XMH-1096 consists of 3 pieces of lithic debitage identified on the ground surface. These pieces include one piece of tan chert shatter, one piece of gray chert shatter, and one black basalt tertiary flake. All artifacts were found on the southeast slope of the hill within a 15m diameter area. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1096 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives

for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Figure 139. General view of XMH-1096, facing south

Figure 140. General view of XMH-1097, facing north

XMH-1097

Determination: Not evaluated

Site XMH-1097 is located on a small isolated hilltop. The hilltop is approximately 20m in diameter and is elevated 10-15m above the surrounding terrain. The site has a 360° unobstructed view of the surrounding terrain. No lakes are visible in the immediate vicinity, but several lakes are located less than 1km to the west. Due to wind erosion and recent episodes of forest fires, the site has a high degree of surface visibility.

Site XMH-1097 consists of one fine-grained black basalt tertiary flake and one black chert secondary flake. Both flakes were observed on the surface of the southeast slope of the hill within a 5m diameter area. Subsurface excavations have yet to be conducted.

Recommendations

Site XMH-1097 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1098

Determination: Not evaluated

Site XMH-1098 is located on a small isolated hilltop (Figure 141). The hilltop is approximately 15m in diameter and is elevated 15-20m above the surrounding terrain. The surrounding terrain consists of isolated hills that are separated by generally flat areas in between. The site has a 360° unobstructed view of the surrounding terrain. No lakes are visible in the immediate vicinity, but several lakes are located less than 1km to the west. Due to wind erosion and recent episodes of forest fires, the site has a high degree of surface visibility. The surface of the site is vegetated primarily by moss and lichen, with some low scrub.

Site XMH-1098 consists of a gray chert uniface found on the ground surface. The uniface fragment is 22mm in width, 15mm in height, and weighs 1.75g. No artifacts were collected and no subsurface excavations were conducted.

Recommendations
Site XMH-1098 has been classified as an isolated find, but the site could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

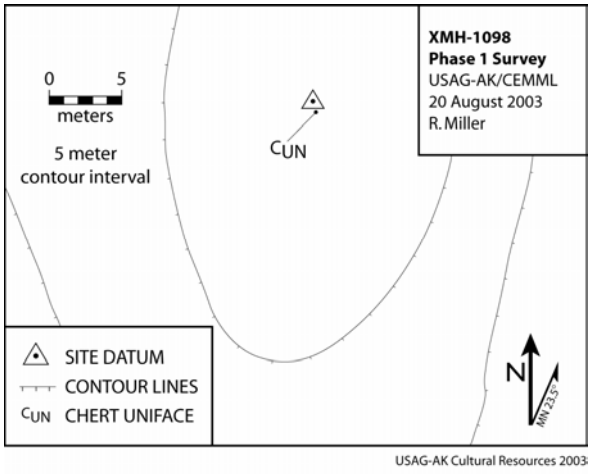

Figure 141. Site map of XMH-1098

Figure 142. General view of XMH-1098, facing south

XMH-1099
Determination: Not evaluated
Site XMH-1099 is located on a small isolated hilltop (Figure 144). The hilltop is approximately 25m in diameter and is elevated 20m above the surrounding terrain. The surrounding terrain consists of isolated hills that are separated by generally flat areas. The site has a 360° degree unobstructed view of the surrounding terrain. No lakes are visible in the immediate vicinity, but several lakes are located less than 1km to the west. Due to wind erosion and recent episodes of forest fires, the site has a high degree of surface visibility.

Figure 143. General view of XMH-1099, heading south

Site XMH-1099 consists of 4 pieces of lithic debitage observed on the ground surface. The pieces include one large black fine grained basalt primary flake with use wear present on one of the sides. The flake measures 69mm in height, 46mm in width, and weighs 38g. The other pieces include a tan chert secondary flake, a light gray chert secondary flake, and a fine grained black basalt tertiary flake. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1099 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

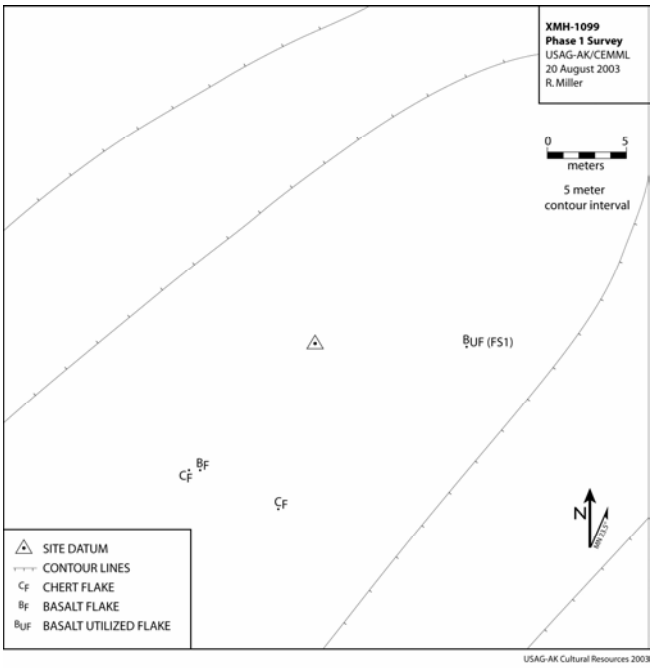

Figure 144. Site map of XMH-1099

Figure 145. General view of XMH-1100, heading south

XMH-1100
Determination: Not evaluated
Site XMH-1100 is located on a large isolated hill. The hill is approximately 45m north/south and 25m east/west and is elevated 30m above the surrounding terrain (Figure 146). The hill slopes gradually on the north side and descends more steeply on the south side. The site has a 360° unobstructed view of the surrounding terrain, and two lakes are visible less than 1km to the southwest. The Granite Mountains are visible to the southeast. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

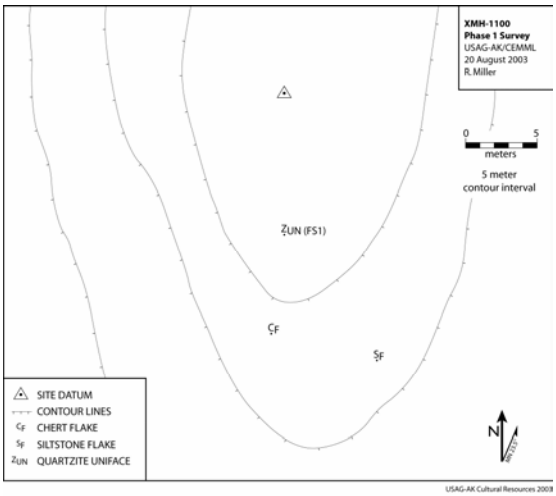

Figure 146. Site map of XMH-1100

Site XMH-1100 consists of two flakes and a large unifacial flake core found on an exposed surface within a 15m area on the southeast slope of the hill. Artifacts include one large gray quartzite unifacial flake core that measures 16cm long and 9cm wide, one light gray chert secondary flake and one tan siltstone (or chert) secondary flake. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1100 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1101
Determination: Not evaluated
Site XMH-1101 is located on a high point of an east/west running knoll Figure 147). The site overlooks an unnamed lake approximately 50m to the south and has a 360° unobstructed view of the surrounding area. Vegetation consist of mixed forest with low scrub, moss lichen and tussock fields. The site has a high percentage of surface visibility.

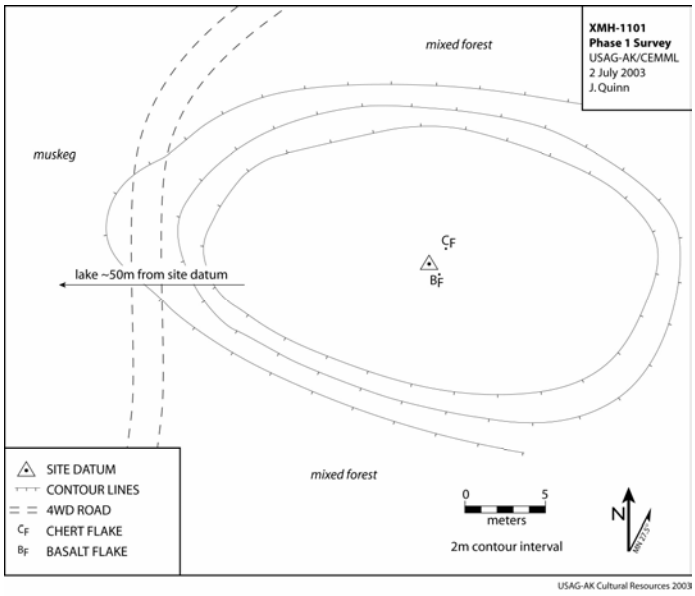

Figure 147. Site map of XMH-1101

Site XMH-1101 consists of two tertiary flakes located on the surface; one fine grained basalt flake and one gray chert flake. Subsurface examinations have yet to be conducted and no density plots have been calculated.

Recommendations
Site XMH-1101 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Figure 148. General view of XMH-1101, facing south

XMH-1102
Determination: Not evaluated
Site XMH-1102 is located on a high point of a small north/south running knoll (10m x 30m), approximately 200m from an unnamed lake to the south. The site has a 360° unobstructed view of the surrounding area. Vegetation in the surrounding area is composed of mixed forest with low scrub, moss lichen and tussock fields.

Site XMH-1102 consists of a single tertiary rhyolite flake found on the surface. A total of seven shovel tests have been excavated, all of which were negative.

Recommendations
Site XMH-1102 has been classified as an isolated find, but the site could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1103
Determination: Not evaluated
Site XMH-1103 is located on a high point of a larger ridgeline. The ridgeline runs generally east/west for approximately 2km and is elevated approximately 250m above the surrounding terrain at its highest point on the west end. The site is located 500m east of this high point and sits approximately 100m above the generally flat terrain. The site has a 180° view of the surrounding terrain and looks out over a lake that is over 1km away to the south. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

Figure 149. General view of XMH-1103, facing south

Site XMH-1103 consists of 2 pieces of lithic debitage observed on the ground surface. These pieces include a piece of gray banded chert shatter and a black basalt secondary flake. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1103 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1104
Determination: Not evaluated
Site XMH-1104 is located 500m east of a high point on top of a generally flat ridge (Figure 151). At this high point the ridge is elevated approximately 100m above the generally flat terrain to the south. The site overlooks a lake and has views of the Granite Mountains to the southeast. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

Figure 150. General view of XMH-1104, heading north

Site XMH-1104 consists of two flakes found on the ground surface. These include a grayish white chert secondary flake and a quartz secondary flake. The chert flake was

observed on a two-track trail and was collected due to the likelihood that it would be impacted by vehicular traffic. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1104 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

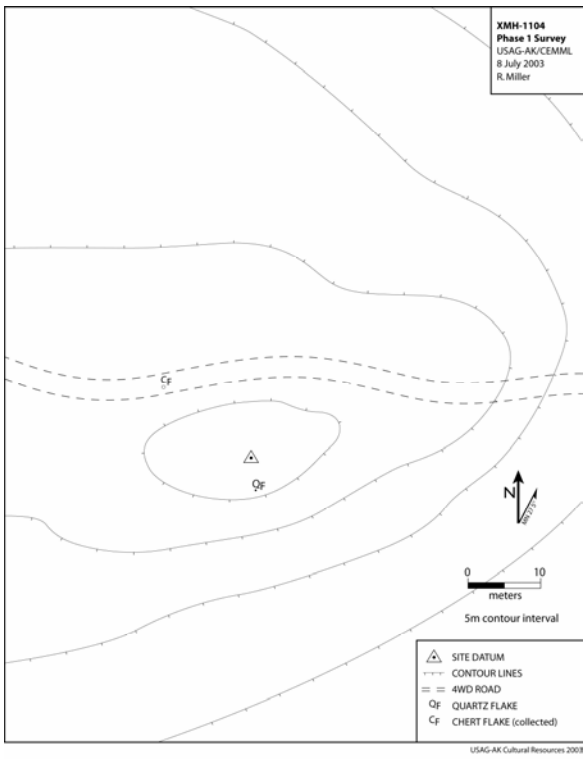

Figure 151. Site map of XMH-1104

XMH-1105
Determination: Not evaluated
Site XMH-1105 is located at the top of an isolated hill (Figure 153). The hill is elevated 30m above the surrounding terrain and is 40m in diameter. The hill is adjacent to a 2km long ridge located to the west and numerous other isolated hills to the east. Immediately below the hill to the east and west are two small (15m diameter) dry lakebeds, no other larger lakes are visible in the immediate area. The site has a 360° unobstructed view of the surrounding terrain. Due to recent episodes of forest fires, the site has a moderate to high degree of surface visibility.

Site XMH-1105 consists of one biface fragment and one pinkish chert secondary flake found on the surface. The biface measures 29mm in length, 29mm in width and weighs 12g. No density plots were calculated and subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1105 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.


Figure 152. General view of XMH-1105, facing south

XMH-1106
Determination: Not evaluated
Site XMH-1106 is located on a high point of a larger ridgeline. The ridge line runs generally east/west for approximately 2km and is elevated

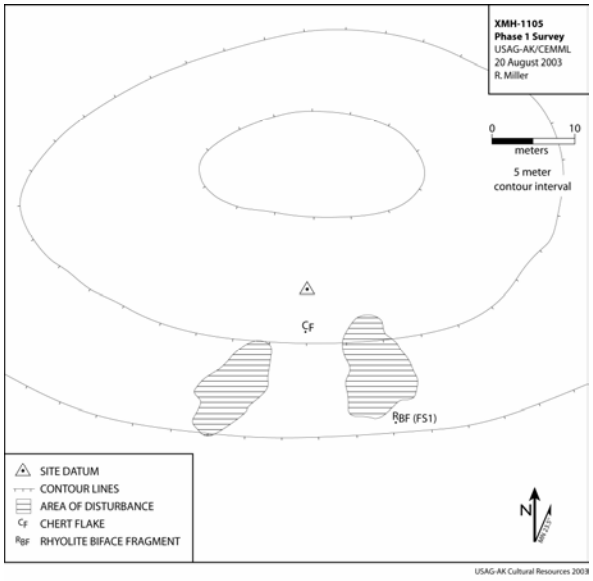

Figure 153. Site map of XMH-1105

Figure 154. General view of XMH-1106, facing north

approximately 250m above the surrounding terrain at the highest point on the west end. The site is located 500m east of the high point, where the ridge is elevated approximately 100m above the generally flat terrain. The sit has a 180° view of the surrounding terrain and looks out over a lake, which is over 1km away to the south. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

Site XMH-1106 consists of two flakes found on the ground surface. These include one fine-grained black basalt tertiary flake and one tan chert secondary flake. These artifacts were observed 15m apart on the southern slope of the high point. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1106 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1107
Determination: Not evaluated
Site XMH-1107 is located at the top of a large isolated hill (Figure 158). The hill is elevated 100m above the generally flat surrounding terrain. The site has a 360° unobstructed view of the surrounding terrain with good views of a large ridge to the west, and a lake, which is approximately 1km to the south. Due to recent episodes of forest fires, the site has moderate to high degree of surface visibility.

Site XMH-1107 consists of numerous (150+) pieces of lithic debitage and 3 tools (Figure 157; Table 6). The potential quartz flake artifacts (100+) were found on the western slope of the hill within a 5m area. The quartz flakes were concentrated in association with a large (50cm x

Figure 155: General view of XMH-1107, facing south

30cm) quartz boulder that may have been utilized as a material source (some battering marks or flake scars are evident), as well as five other quartz cobbles that may have been either tested or used as cores. Two density plots were placed near the quartz flake concentration and another was placed nearby on the southern slope where one chert uniface and a chert flake were found (Figure 156). Artifact density is calculated as being up to 31.66 artifacts per-square meter A flake type analysis indicates primary and secondary lithic reduction of quartz from a large bolder may have occurred at the site, as well as later stages of lithic reduction of non-quartz materials.

All of the non-quartz flakes (8) and the 3 tools were found on the southern slope of the hill. Tools included one chert bifacial projectile point base and two chert unifacial end scrapers. The non-quartz flakes included gray quartzite, dark gray basalt, red chert, and gray chert as material types. Subsurface excavations have yet to be conducted and no artifacts were collected.

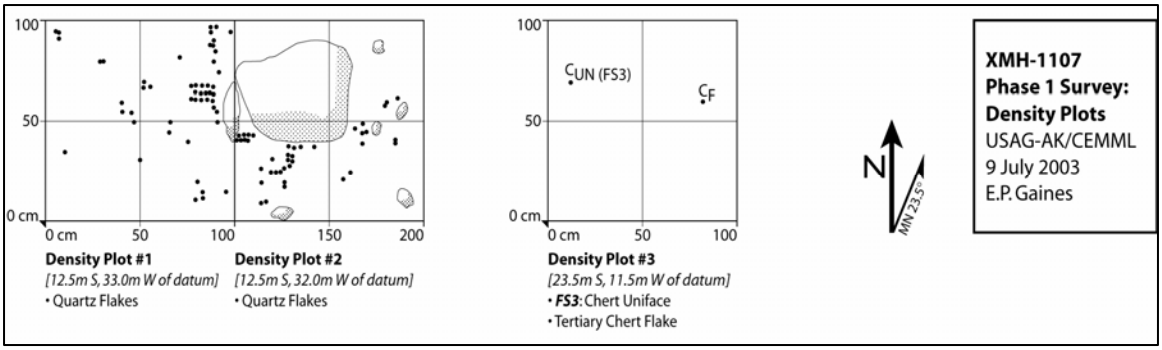

Figure 156. Density plots from XMH-1107, showing potentially utilized bolder

Table 6. Lithic tools from XMH-1107

FS#	Artifact type	Material	Color	Length	Width	Weight
FS1	Proj. pt. base	Chert	gray	43.4mm	30.5mm	11.7g
FS2	Uniface	Chert	Gray/brown	42.7mm	21.3mm	8.1g
FS3	Uniface	Chert	Green/gray	22.1mm	18.4mm	2g

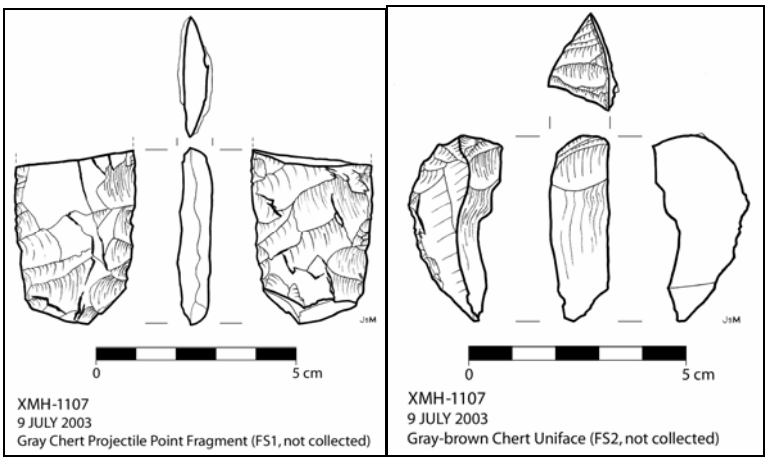

Figure 157. Illustrations of lithic tools from XMH-1107

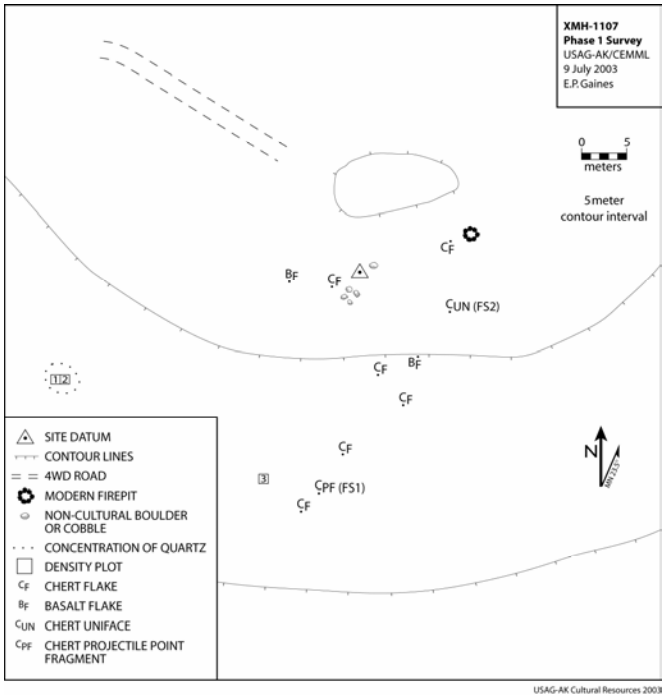

Figure 158. Site map of XMH-1107

Recommendations

Site XMH-1107 has initially been classified as lithic procurement/ production site where both primary reduction of locally occurring material type (quartz) and late stage lithic reduction or tool use and maintenance of non-locally occurring material types occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1108

Determination: Not evaluated

Site XMH-1108 is located on a high point of the northeastern portion of a moraine that runs approximately 2km from east to west (Figure 160). The high point is elevated 40m above the surrounding terrain and is 20m long and 40m wide. The site has a 360° unobstructed view of the surrounding area and the Granite Mountains can be seen to the southeast and Donnelly Dome to the southwest. No lakes are visible in the immediate area, but a possible dry lakebed exists 150m to the south. Due to recent forest fires, surface visibility at the site is moderate to high.

Figure 159. General view of XMH-1108, facing north

Site XMH-1108 consists of three tool fragments and 6 pieces of lithic debitage found on the ground surface. The tools include one unidentified tool fragment of gray chert that weighs 4.25g, measures 23.75mm long, 25.5mm wide, and is 6.75mm thick. Two other tools could be identified in the field; a medial blade fragment with retouch/use wear on both sides that weighs 0.75g, measures 12.5mm long, 15mm wide, and is 4.7mm thick, and a brown chert burin that weighs 12g, measures 48mm long and 32mm wide. The remaining artifacts are all tertiary flakes; 3 gray chert flakes, 1 grayish black basalt flake, 1 reddish gray quartzite flake, and 1 obsidian flake. Three density plots were placed at the site and artifact density is calculated as being up to 1 artifact per-square meter. Subsurface examinations have yet to be conducted.

Recommendations

Site XMH-1108 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. The site could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

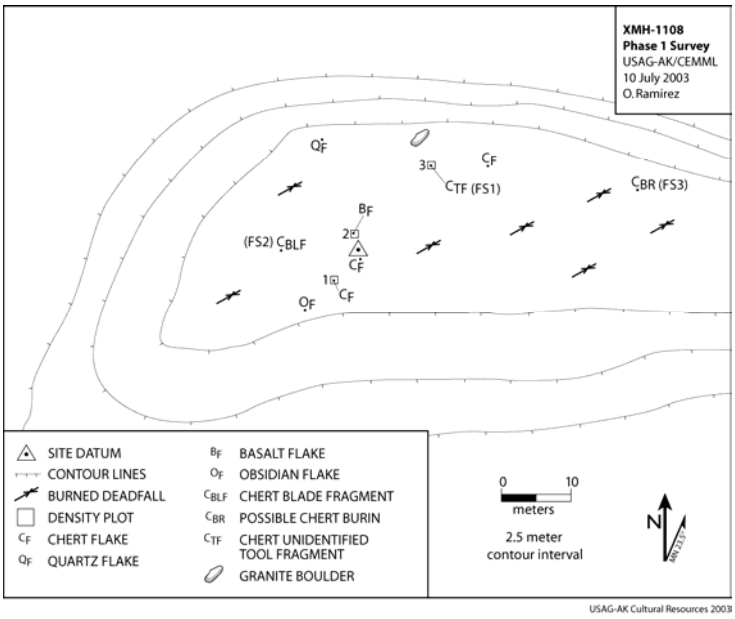

Figure 160. Site map of XMH-1108

XMH-1109

Determination: Not evaluated

Site XMH-1109 is located on a high point of the northeastern portion of a ridge that runs approximately 2km from east to west. The hill is elevated 40m above the surrounding terrain and is 65m long and 30m wide. The site has a 360° unobstructed view of the surrounding terrain, with views of the Granite Mountains to the southeast and Donnelly Dome to the

southwest. Two lakes are visible 1km to the northwest. Due to recent forest fires, there is moderate surface visibility at the site.

Site XMH-1109 consists of 3 flakes found on the surface. The artifacts include 1 chert secondary flake and 2 quartz flakes, one secondary and one tertiary. Subsurface examinations have yet to be conducted.

Recommendations
Site XMH-1109 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Figure 161. General view of XMH-1109, facing north

XMH-1110
Determination: Not evaluated
Site XMH-1110 is located on a northeast-southwest trending bluff overlooking a creek to the west. Donnelly Dome is visible to the southwest, the Alaska Range to the west, and the Granite Mountains to the east. The nearest water is a creek located approximately 500m to the northwest and a lake approximately 1km to the south. There is no surface visibility due to vegetation

Figure 162. General view of XMH-1110, facing southwest

Site XMH-1110 consists of a chert flake found in a shovel test unit. A total of four shovel tests were excavated to glacial till. The one positive shovel test contained a tertiary gray chert flake found at a depth of 35-45cmbs. The shovel test was 50cm deep with four distinct layers; 0-8cm is the organic layer, 8-23cm is yellow brown loess, 23-45cm is strong brown loess, and 45-50cm is glacial till. The artifact was collected, but no density plots were calculated.

Recommendations
Site XMH-1110 has been classified as a buried site that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1111

Determination: Not evaluated

Site XMH-1111 is located on a high point of the northeastern portion of a 2km long ridge (Figure 164). The hill is elevated 40m above the surrounding terrain and is 65m long and 30m wide. The site has a 360° unobstructed view of the surrounding terrain, with views of the Granite Mountains to the southeast and Donnelly Dome to the southwest. No lakes are visible in the immediate area, but a possible dry lakebed exists 150m to the south. There are two large lakes approximately 2km to the west. Due to recent forest fires, there is moderate to high surface visibility at the site.

Figure 163. General view of XMH-1111, facing north

Site XMH-1111 consists of four blade fragments found on the surface; 2 chert blade fragments which both exhibit retouch/use wear on either side, and 2 basalt blade fragments that refit into a single blade (Table 7). No density plots were calculated and subsurface excavations have yet to be conducted.

Recommendations

Site XMH-1111 has been classified as a blade production site that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

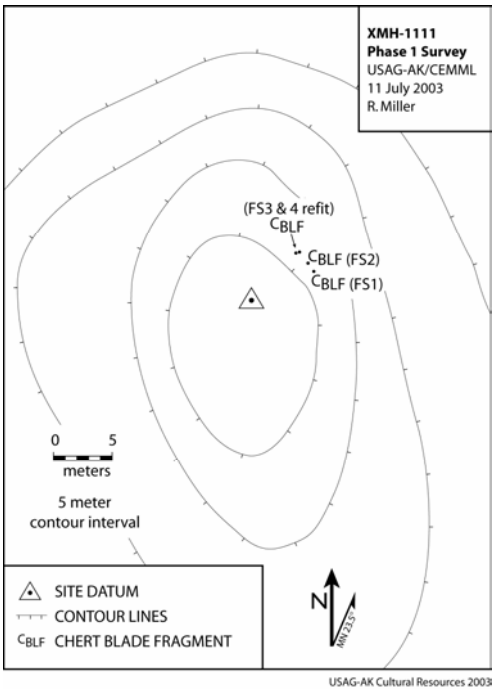

Figure 164. Site map of XMH-1111

XMH-1112

Determination: Not evaluated

Site XMH-1112 is located at the top of a large isolated hill. The hill is elevated 50m above the surrounding terrain. The hill is 70m north/south by 25m east/west and is characterized by two high points separated by a low point of less than 2m in elevation. The site has a 180° unobstructed view to the north. There is a lake (mostly dry) located less than 100m to the west. Due to recent episodes of forest fires, there is moderate to high surface visibility at the site.

Site XMH-1112 consists of 2 pieces of lithic debitage, including a gray chert tertiary flake which was found at the high point on the north end of the site, and a piece of chert shatter which was found at the high point at the southern end of the site. These two artifacts were separated by 50m. Subsurface excavations have yet to be conducted.

Recommendations

Site XMH-1112 has initially been classified as a small lithic scatter that could potentially contain more cultural

material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Table 7. Lithic tools from XMH-1111

FS#	Artifact Type	Material	Color	Length	Width	Weight
FS1	Blade fragment	chert	gray	11 mm	11 mm	0.25 g
FS2	Blade fragment	chert	gray	13 mm	11 mm	0.25 g
FS3	Blade fragment	basalt	black	11 mm	10 mm	0.15 g
FS4	Blade fragment	basalt	black	12 mm	6 mm	0.10 g

Figure 165. General view of XMH-1112, facing north

Figure 166. General view of XMH-1113, facing east

XMH-1113

Determination: Not evaluated

Site XMH-1113 is located at the top of a large isolated hill (Figure 167). The hill is elevated 40m above the surrounding area. The hill runs north for 100m where it rises in elevation approximately 30m. The site has a 360° unobstructed view of the surrounding terrain. Site XMH-1114 is located 200m to the north. No lakes are visible from the site. Due to recent episodes of forest fires, there is a high degree of surface visibility at the site.

Site XMH-1113 consists of one bifacial projectile point fragment and 3 pieces of lithic debitage. The projectile point midsection fragment measures 21.6mm in width, 22.4mm in height, and weighs 3.5g. This artifact was found on the southeast slope of the hill along with a piece of chert shatter. Additionally, 2 quartz flakes were found on the southwest slope of the hill in an area where several (5+) quartz cobbles are eroding from below the surface. Subsurface examinations have yet to be conducted.

Recommendations

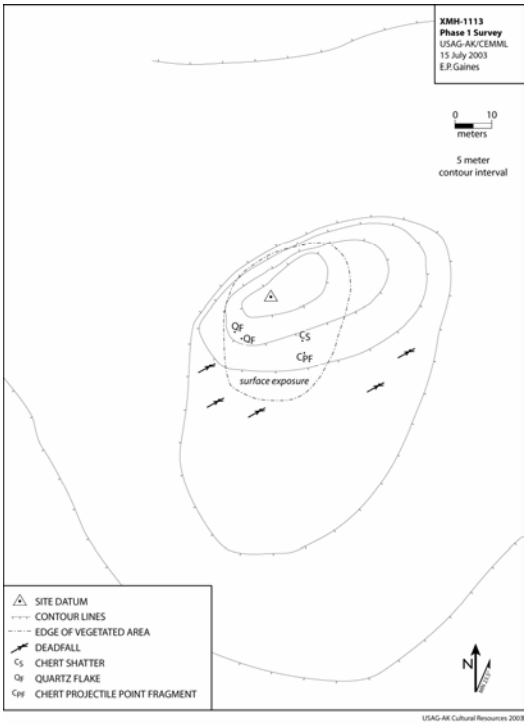

Figure 167. Site map of XMH-1113

Site XMH-1113 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1114

Determination: Not evaluated

Site XMH-1114 is located at the top of a large isolated hill that is elevated 60m above surrounding terrain (Figure 169). The site has an approximately a 180° unobstructed view of the surrounding terrain to the north. No lakes are visible in the immediate vicinity, but numerous small dry lakes are located within 1km, the closest of which is located 500m to the west. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

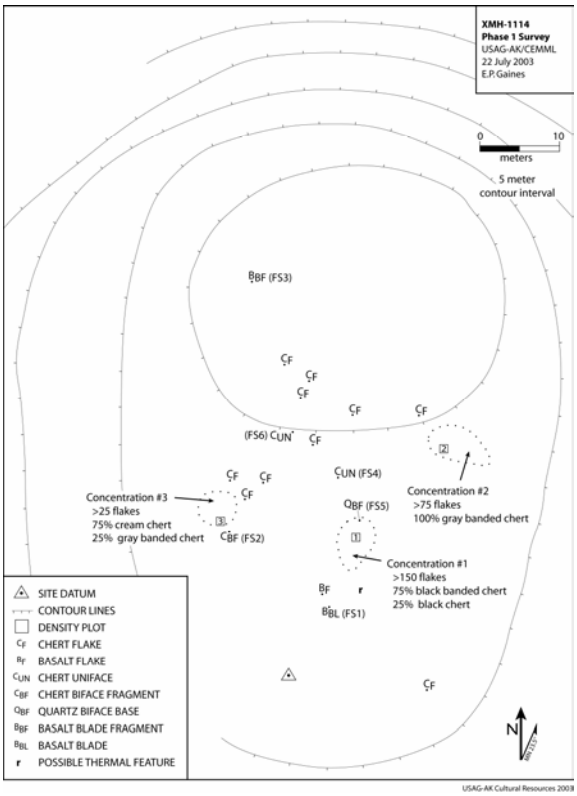

Figure 169. Site map of XMH-1114

Figure 168. General view of XMH-1114, facing north

Figure 170. Possible hearth feature

Site XMH-1114 consists of numerous (350+) pieces of lithic debitage in various stages of reduction, as well as six tools or tool fragments found on the surface of the site. Three separate artifact concentrations were observed on the hilltop, as well as a circular alignment of rocks that may represent a possible hearth feature. The possible hearth feature is located at the south end of the hilltop and is made up of ten or more large (30-50cm) siltstone boulders that are arranged in a circular formation 1.5m in diameter. The boulders are approximately 75 percent buried by naturally deposited soil and are all cracked by natural freeze thaw processes. No evidence of burning was observed, and thus superficial surface examinations were unable to determine the nature of this feature.

The majority of the artifacts encountered at the site (approximately 95 percent) were located within one of the three artifact concentrations. As noted, the lithic debitage is in various stages of reduction, however over 75 percent of the flakes were tertiary flakes. The remaining 25 percent were mostly secondary flakes, and only 2 primary flakes were observed at the site (Table 9).

All three of the artifact concentrations are located at the southern end of the hilltop and are separated by less than 1m. The first concentration consists of over 150 flakes, measures 6m in diameter, and is located 5m upslope of the possible hearth feature. Approximately 75 percent of the materials from this concentration consist of a gray-banded chert, while the remaining 25 percent consist of black fine-grained basalt, as well as several green chert pieces. The second concentration consists of over 75 flakes, all of which are a gray-banded chert. This concentration measures 5m in diameter and is located on the southeastern slope of the hill. The third concentration consists of over 25 flakes, approximately 75 percent of which are a cream colored chert, while the remaining 25 percent consist of a gray-banded chert. This concentration measures 4m in diameter and is located 10m down slope from the top of the hill.

The remaining 5 percent of the lithic debitage that was encountered outside of the three artifact concentrations and consists of over 25 pieces of flaked stone and 6 tools or tool fragments. These artifacts were observed on the southern slope of the hilltop. The tools observed at the site consist of blades, two biface fragments, and two unifaces (see Table 8).

Three density plots were calculated at the site and artifact density is calculated as being up to 41.33 artifacts per-square meter (Figure 171). Subsurface excavations have yet to be conducted.

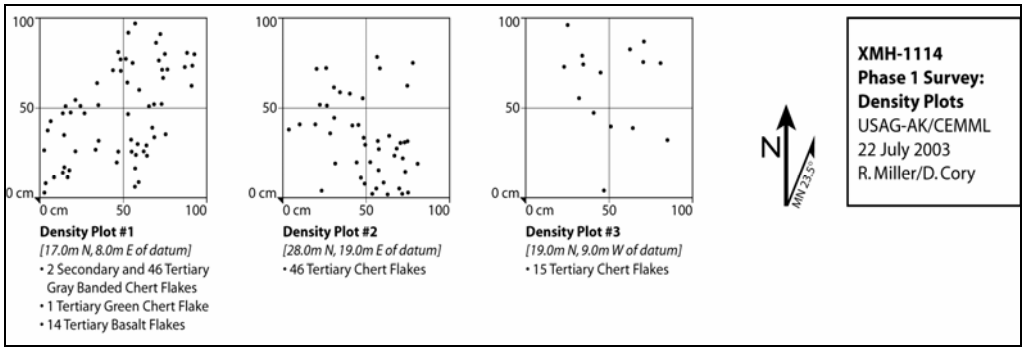

Figure 171. Density Plots from XMH-1114

Table 8. Lithic tools recorded at XMH-1114

FS#	Artifact type	Material	Color	Length	Width	Weight
FS1	blade	basalt	black	29mm	10mm	0.5g
FS2	biface fragment	chert	Gray banded	43mm	19mm	6g
FS3	blade fragment	basalt	black	16mm	12mm	0.75g
FS4	retouched flake	chert	gray banded	41mm	12mm	1.9g
FS5	biface fragment	quartz	white	42.5mm	25mm	13.5g
FS6	uniface	chert	gray banded	75mm	39mm	24.5g

Recommendations
Site XMH-1114 has initially been classified as a large lithic scatter where production and later stages of lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Table 9. Lithic assemblage recorded from XMH-1114

Artifact Class	Frequency	% of Assemblage
Bifaces		
Biface fragments	2	1%
Unifaces		
Scrapers	1	1%
Unifacially retouched flake	1	1%
Blade Cores and Blades		
Blade	1	1%
Blade Fragment	1	1%
Debitage		
Flakes*	124	94%
Shatter	1	1%
Total	**131**	**100%**

* The total of 124 flakes came from the 3 density plots and several flakes that lay outside the main concentrations of debitage. The total number of flakes at the site has been estimated as being in excess of 350 flakes. If accurate, the total of flakes at the site would be closer to 99 percent.

XMH-1115
Determination: Not evaluated
Site XMH-1115 is located at the top of a hill. The hill is elevated 30m above the generally flat terrain that exists between the numerous other hills that surround the site. The site has an approximately 180° unobstructed view of the surrounding terrain to the north. No lakes are visible in the immediate vicinity, but numerous small dry lakes are located within 1km, the closest of which is located 700m to the south. Due to recent episodes of forest fires, the site has a high degree of surface visibility

Figure 172. General view of XMH-1115, facing east

Site XMH-1115 consists of one bifacial projectile point fragment observed on the surface of the hill. The projectile point is a midsection fragment made of a cream colored chert. No other artifacts were observed at the site. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1115 has been classified as an isolated find, but the site could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the

APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1116
Determination: Not evaluated
Site XMH-1116 is located at the top of an isolated hill. The hill is elevated 50m above the generally low hilly terrain. The site has a 360° unobstructed view of the surrounding terrain including a lake which is less than 1km to the southwest.

Site XMH-1116 consists of three flakes located on the surface. The flakes include one green gray chert secondary flake, one quartz secondary flake, and one quartz primary flake. No other artifacts were observed at the site. Subsurface excavations have yet to be conducted.

Figure 173. General view of XMH-1116, facing south

Recommendations
Site XMH-1116 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1117
Determination: Not evaluated
Site XMH-1117 is located on a high point of a larger hill. The site is elevated 30m above the surrounding terrain. Site XMH-1115 is located less than 100m to the west. The site has a 180° unobstructed view of the surrounding terrain to the north and east. No lakes are visible from the site, but numerous small lakes are located within 1km, the closest of which is 500m to the southeast. Due to recent episodes of forest fires, there is a high degree of surface visibility at the site.

Site XMH-1117 consists of two flakes found on the ground surface. The flakes include one green gray chert tertiary flake and one gray chert tertiary flake. Subsurface excavations have yet to be conducted.

Figure 174. General view of XMH-1117, facing west

Recommendations
Site XMH-1117 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1118

Determination: Not evaluated

Site XMH-1118 is located at the top of an isolated hill elevated 30m above the surrounding terrain. There is a lake approximately 500m to the south that is visible from the site. The site has a 180° unobstructed view of the surrounding terrain to the south. Due to recent episodes of forest fires, there is a moderate degree of surface visibility at the site.

Figure 175. General view of XMH-1118, facing south

Site XMH-1118 consists of two chert tertiary flakes found on the surface of the hill. No other artifacts were observed at the site and no subsurface excavations have been conducted.

Recommendations

Site XMH-1118 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1119

Determination: Not evaluated

Site XMH-1119 is located on the southwestern slope of a north/south trending ridge that is elevated 40m above the surrounding terrain. There is a lake approximately 150m to the west that is visible from the site. The site has an approximately 180° unobstructed view of the surrounding terrain to the south and west. Due to recent episodes of forest fires, there is a moderate degree of surface visibility at the site.

Figure 176. General view of XMH-1119, facing east

Site XMH-1119 consists of one microblade and 11 flakes located on the surface. The microblade is gray chert and measures 22mm high, 9mm wide and weighs 2g. The flakes are small (all but one flake is less than 20mm in length) tertiary flakes of various material types. Three density plots were calculated at the site. Subsurface excavations have yet to be conducted.

Recommendations

Site XMH-1119 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1120

Determination: Not evaluated

Site XMH-1120 is located on a northeast/southwest trending ridge. There are small ponds visible 50m to the north and northwest. A small pond is also visible to the southeast

approximately 300m from the site. The site has a 360° unobstructed view of the surrounding terrain. The Granite Mountains can be seen to the southeast, Donnelly Dome to the southwest, and the Alaska Range to the west. The site has no surface visibility due to vegetation.

Site XMH-1120 consists of one flake found during systematic shovel testing. A total of three 30cm x 30cm shovel tests were excavated to glacial till. One positive shovel test contained a tertiary basalt flake at a depth of 10-20cmbs. The shovel test was 45cm deep, with four distinct layers; 0-8cmbs was the organic layer, 8-16cmbs as a strong brown loess, 16-40cmbs was a dark yellow brown loess, and 40-45cmbs was glacial till. The artifact was collected and no density plots were calculated at the site.

Figure 177. General view of XMH-1120, facing east

Recommendations
Site XMH-1120 has been classified as a buried site that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1121
Determination: Not evaluated
Site XMH-1121 is located on a small knoll. A lake is visible 200m to the northeast and a small pond is located between the site and the lake. The site has an approximately 180° unobstructed view of the surrounding terrain to the south including Donnelly Dome, the Alaska Range and the Granite Mountains. There is no surface visibility at the site.

Figure 178. General view of XMH-1121, facing northwest

Site XMH-1121 consists of one flake found in a shovel test unit. A total of three 30cm x 30cm shovel tests were excavated to glacial till. One positive shovel test contained a tertiary flake of an unidentifiable material at a depth of 10-30cmbs. The shovel test was 60cm deep, with four distinct layers; 0-5cmbs is the organic layer, 5-10cmbs is a dark brown loess, 10-55cmbs is a heavily mottled layer consisting of transitions between dark yellow brown loess and brown loess, and 55-60cmbs is glacial till. The artifact was collected and no density plots were calculated.

Recommendations
Site XMH-1121 has been classified as a buried site that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1122

Determination: Not evaluated

Site XMH-1122 is located on a northeast/southwest trending glacial moraine (Figure 179). The nearest known water sources is a marsh located approximately 400m east/southeast of the site. The site has an approximately 240° unobstructed view of the surrounding terrain to the north, west and south. Surface visibility is approximately 60 percent.

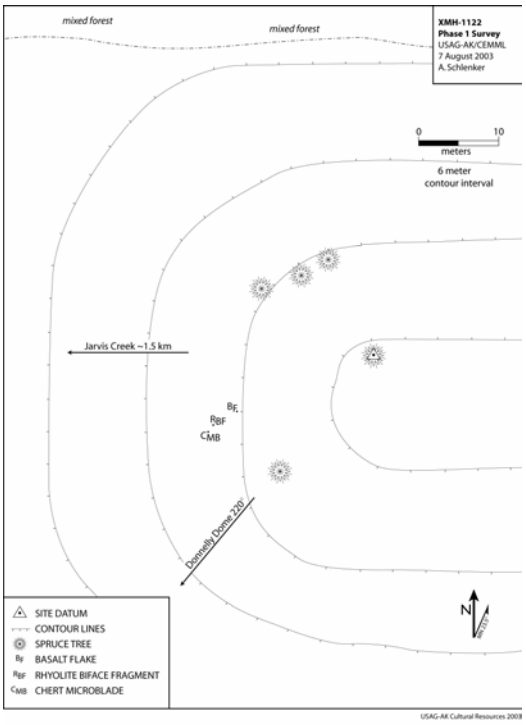

Figure 179. Site map of XMH-1122

Site XMH-1122 consists of a microblade, biface fragment and flake found on the ground surface. The microblade fragment is made of gray chert and is 1.3cm long, 0.7cm wide, and 0.2cm thick. The biface fragment is a tan chert projectile point tip that measures 2.6cm long, 1.9cm wide, and 0.5cm thick. The flake is a rough basalt tertiary flake. All artifacts were found on the surface. No subsurface testing was conducted and no density plots were calculated. No photographs were taken of the site.

Recommendations

Site XMH-1122 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1123

Determination: Not evaluated

Site XMH-1123 is located at the top of a hill elevated 15m above the surrounding terrain. A small dry lake is located 80m away. The site has an approximately 180° unobstructed view of the surrounding terrain to the north and east. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

Figure 180. General view XMH-1123, facing south

Site XMH-1123 consists of two flakes found on the ground surface. The flakes include one pinkish gray chert tertiary flake and a gray brown chert secondary flake. Subsurface excavations have yet to be conducted.

Recommendations

Site XMH-1123 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1124

Determination: Not evaluated

Site XMH-1124 is located at the top of a hill elevated 20m above the surrounding terrain. A small dry lake is located 100m away. The site has an approximately 180° unobstructed view of the surrounding terrain to the north and west towards the lake. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

Figure 181. General view of XMH-1124, facing west

Site XMH-1124 consists of two flakes found on the ground surface, including one black fine-grained basalt tertiary flake and one black chert tertiary flake. Both artifacts were found on the south slope of the hill within a 10m area. Subsurface excavations have yet to be conducted.

Recommendations

Site XMH-1124 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1125

Determination: Not evaluated

Site XMH-1125 is located at the top of a hill elevated 40m above the surrounding terrain. The site has an approximately 180° unobstructed view of the surrounding terrain to the north. No lakes are visible from the site, but numerous small lakes are located within 1km, the closest of which is located 200m to the north. Due to recent episodes of forest fires, there is a high degree of surface visibility at the site.

Figure 182. General view of XMH-1125, facing north

Site XMH-1125 consists of three black fine-grained tertiary basalt flakes found on the ground surface. Subsurface excavations have yet to be conducted.

Recommendations

Site XMH-1125 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1126

Determination: Not evaluated

Site XMH-1126 is located at the top and on the south slope of a large hill elevated 40m above the surrounding terrain (Figure 183). Four small lakes are located approximately 300m away to the west and another small lake is visible 400m to the east. The hill slopes off steeply in all

directions except to the west, where a bench extends out nearly 100m and is 20m lower in elevation. The site has an approximately 180° unobstructed view of the surrounding terrain to the east. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

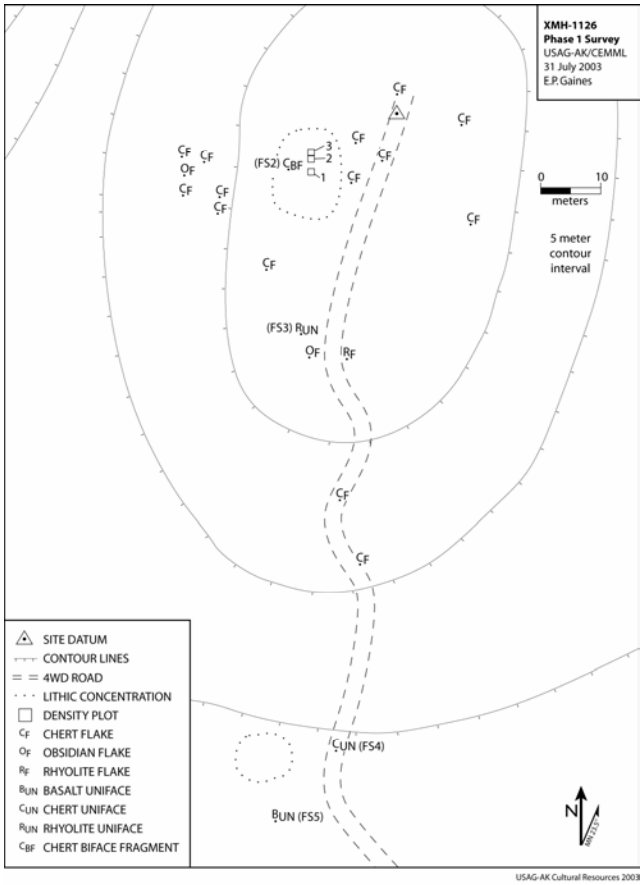

Figure 183. Site map of XMH-1126

Figure 184. General view of XMH-1126, facing north

Site XMH-1126 consists of one biface fragment, 4 unifaces and numerous (80+) pieces of lithic debitage on the ground surface. Materials at the site include gray-banded chert, white chert, black fine-grained basalt, brown rhyolite, black obsidian, and gray obsidian. Approximately 85 percent of the flakes were tertiary, other than a single primary flake, and the remaining 15 percent were secondary flakes (Table 10).

Two separate artifact concentrations were observed on the hill. The first concentration is located near the top of the hill on the southwest slope and consists of 50+ flakes as well as a chert projectile point fragment and a chert uniface. The majority (75-80 percent) of the flakes from this concentration are black fine-grained basalt, while the remaining portion (20-25 percent) is gray-banded chert. The second concentration is located farther down slope on the southern side of the hill and consists of 10+ flakes of various materials. Numerous (20+) other flakes were observed scattered across the top of the hill and continuing down slope to the south until reaching the area where the second concentration is located.

Three density plots were calculated at the site and artifact density is calculated as being up to 5 artifacts per-square meter (Figure 185). Subsurface excavations have yet to be conducted.

Recommendations

Site XMH-1126 has initially been classified as a large lithic scatter where lithic production and later stages of lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

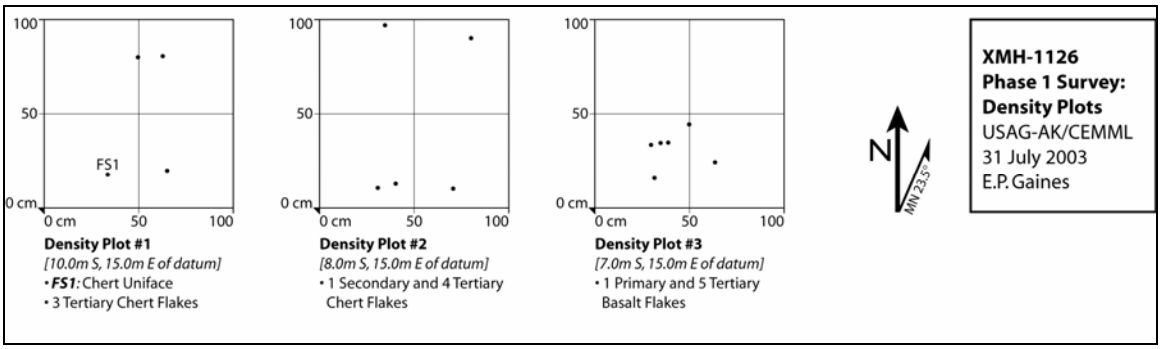

Figure 185. Density plots from XMH-1126

Table 10. Lithic tools from XMH-1126

FS#	Artifact type	Material	Color	Length	Width	Weight
FS1	Uniface	Chert	gray banded	29mm	15mm	1g
FS2	Projectile point base fragment.	Chert	gray banded	28mm	26mm	4g
FS3	Uniface	Rhyolite	brown	32mm	30mm	10g
FS4	Uniface	Chert	gray	36mm	32mm	14g
FS5	Uniface	Basalt	black	39mm	37mm	9g

XMH-1127

Determination: Not evaluated

Site XMH-1127 is located at the top of a hill elevated 25m above the surrounding terrain. To the south is a small dry lake located 100m away. The site has an approximately 180° unobstructed view of the surrounding terrain to the north. Due to recent episodes of forest fires, there is a high degree of surface visibility at the site.

Site XMH-1127 consists of two quartz crystal secondary flakes found on the ground surface. Subsurface excavations have yet to be conducted.

Figure 186. General view of XMH-1127, facing south

Recommendations

Site XMH-1127 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1128

Determination: Not evaluated

Site XMH-1128 is located at the top of a small rise. The small rise is at the southern end of a north/south trending ridge elevated 15m above the surrounding terrain. North of the site, the

ridge begins to descend to a lower, generally flat area. There are good views in this direction, as well as to the east and west where numerous smaller hills are located. No lakes are visible in the immediate area, but a small lake is located 700m to the southeast. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

Figure 187. General view of XMH-1128, facing north

Site XMH-1128 consists of four flakes found on the ground surface. The flakes include one tan chert tertiary flake, one gray chert tertiary flake, one gray-banded chert tertiary flake, and one white chert tertiary flake with a reddish band. All of the artifacts were observed within a 2m area. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1128 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1129
Determination: Not evaluated
Site XMH-1129 is located at the top of a small rise (Figure 189). This rise is at the southern end of a north/south trending ridge elevated 15m above the surrounding terrain. North of the site, the hill begins to descend to a lower and generally flat area. No lakes are visible from the site, but a small lake is located 500m to the southeast. Sites XMH-1134, XMH-1135 and XMH-1136 are located less than 100m away on an adjoining set of hills. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

Figure 188. General view of XMH-1129, facing south

Site XMH-1129 consists of three lithic artifacts found on the ground surface. The artifacts include one green gray rhyolite secondary flake, and two black chert projectile point fragments that refit into a single artifact. The projectile point fragments were located only 0.5m apart. The first projectile point fragment measures 14mm long, 17mm wide and weighs 1g. The second fragment is 13mm long, 14mm wide and weighs 1.75g. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1129 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

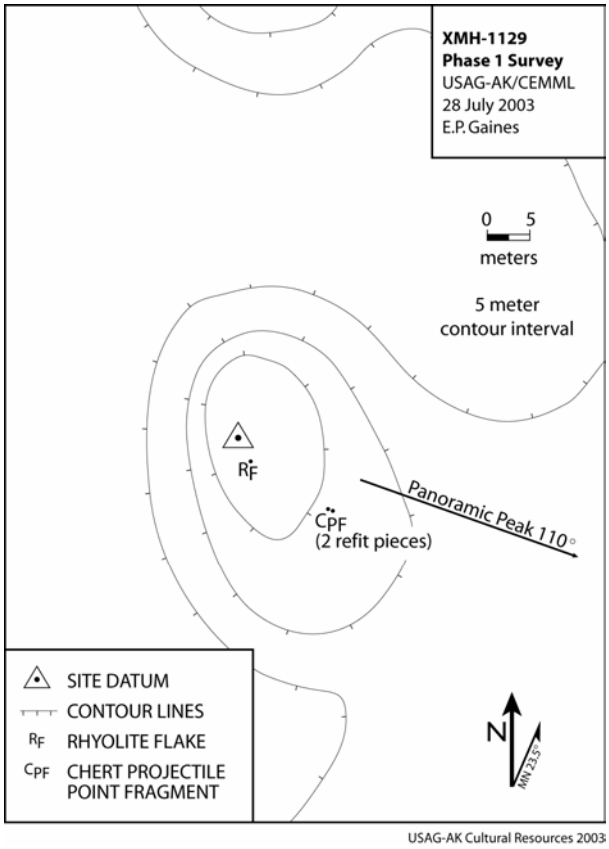

Figure 189. Site map of XMH-1129

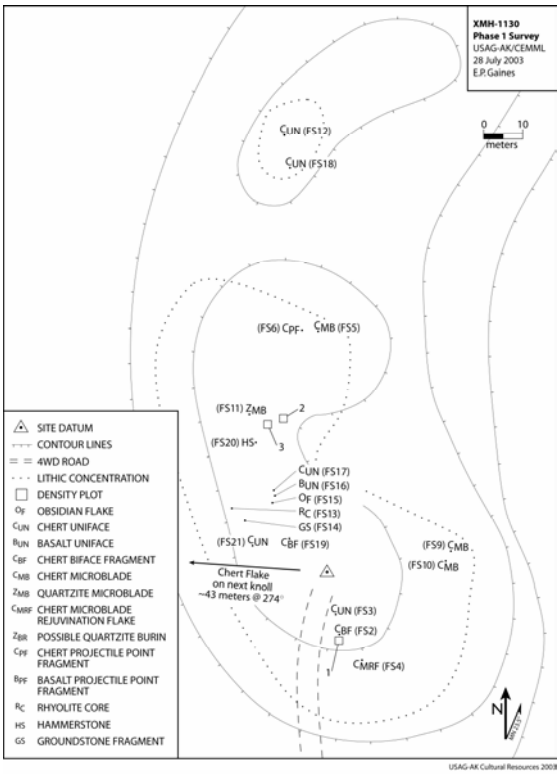

Figure 190. Site map of XMH-1130

XMH-1130

Determination: Not evaluated

Site XMH-1130 is located on two high points separated by approximately 10m on a ridgeline (Figure 190). The site is elevated 100m above the surrounding terrain and has a 360° unobstructed view of the region. No lakes are visible in the immediate vicinity, but a small lake is located 200m to the southeast. Due to recent episodes of forest fires, the site has a high degree of surface visibility. An ATV trail has disturbed the southern slope of the hill, exposing a large area.

Site XMH-1130 consists of 20 tools, including a side-notch projectile point, one expedient flake core and numerous (225+) pieces of lithic debitage found on the ground surface (Figure 191; Table 12). Artifacts were observed throughout the entire surface of both rises on the ridge. One chert flake was observed on a lower rise that was less than 50m from artifacts noted on the two higher rises.

One concentration of artifacts consists of 200+ flakes and extends for over 50m north/south and 20m east/west. All but two of the observed tools were in this concentration. A ground stone fragment of quartzite appears to have a highly polished surface. However, field analysis was unable to determine this with certainty. The second concentration of artifacts consists of 25+ pieces of flaked stone and two chert unifaces and is 10m in diameter. Materials noted at the site include green gray chert, black chert, gray banded chert, white chert, gray chert, orange

brown chert, gray green rhyolite, gray brown rhyolite, black fine grained basalt, medium grained gray brown quartzite, red fine-grained quartzite, and obsidian.

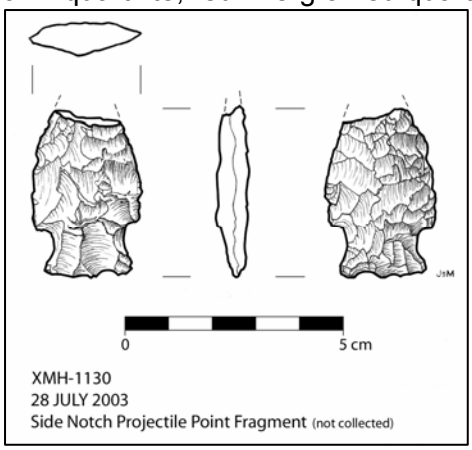

Figure 191. Illustrations of projectile point from XMH-1130

Figure 192. General view of XMH-1130, facing north

Three density plots were calculated at the site, all within the most southern artifact concentration (Figure 193). Twenty-one tools and other diagnostic artifacts were observed at the site and they are listed in Table 11. No subsurface excavations have yet been conducted and no artifacts were collected.

Recommendations

Site XMH-1130 has initially been classififed as a large lithic scatter where microblade production and later stages of lithic reduction occurred. The site may contain a Northern Archaic Tradition component based on the projectile point typology. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

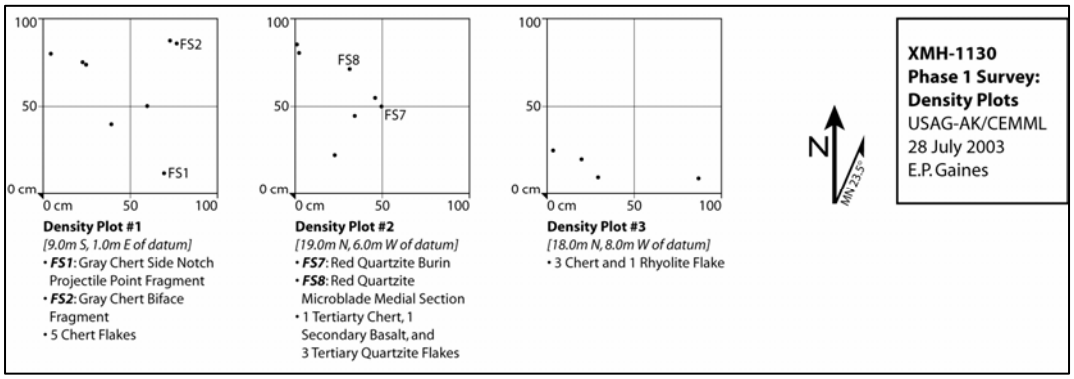

Figure 193. Density plots from XMH-1130

Table 11. Lithic tools recorded at XMH-1130

FS#	Artifact type	Material	Color	Length	Width	Weight
FS1	side notched projectile point	chert	Gray	38.5mm	20.25mm	7.75g
FS2	biface frag	chert	Gray	24mm	9mm	0.25g

FS3	Uniface	chert	Gray	29mm	22mm	5g
FS4	microblade rejuvenation flake	chert	Gray banded	24mm	13mm	1.75g
FS5	microblade frag	chert	Gray	16mm	6mm	0.25g
FS6	projectile point. midsection	basalt	Gray	22mm	28mm	5.25g
FS7	Burin	quartzite	Red	21mm	7mm	1.75g
FS8	microblade frag.	quartzite	red	10mm	8mm	0.25g
FS9	microblade frag.	chert	black	14mm	4mm	0. 25g
FS10	microblade frag	chert	Gray	15mm	7mm	0.5g
FS11	microblade	quartzite	red	41mm	9mm	1.5g
FS12	Uniface	chert	black	22mm	19mm	3.25g
FS13	core	rhyolite	Gray/brown	112mm	118mm	< 100g
FS14	ground stone frag.	quartzite	Gray/brown	142mm	128mm	< 100g
FS15	Retouched flake	obsidian	black	22mm	12mm	1.25g
FS16	Uniface	basalt	black	35mm	21mm	8.5g
FS17	Uniface	chert	Gray	22mm	19mm	3g
FS18	Uniface	chert	white	22mm	27mm	3.5g
FS19	Biface	chert	black	33mm	11mm	1.75g
FS20	Hammer stone	basalt	black	118mm	42mm	< 100g
FS21	Uniface	chert	gray	38mm	29mm	8.25g

Table 12. Lithic assemblage recorded from XMH-1130

Artifact Class	**Frequency**	**% of Assemblage**
Bifaces		
Projectile point (Side notch)	1	3%
Projectile point (Fragment)	1	3%
Biface	1	3%
Biface fragments	1	3%
Unifaces		
Unifaces	6	16%
Unifacially retouched flake	1	3%
Microblade Cores and Microblades		
Microblade core rejuvenation flakes	1	3%
Microblades	4	11%
Burin?	**1**	**3%**
Large flake cores	**1**	**3%**
Hammer stone	**1**	**3%**
Debitage		
Flakes*	16	43%
Shatter	**1**	**3%**
Total	3	100%

* The total of 16 flakes came for the 3 density plots and one flake that lay outside the main concentrations of debitage. The total number of flakes at the site has been estimated as being in access of 225. If this is accurate, the total of flakes at the site would be closer to 93 percent, microblades and unifaces would be 3 percent, and all others 1 percent.

XMH-1131
Determination: Not evaluated
Site XMH-1131 is located at a high point on a glacial moraine. The high point is 20m in diameter and is elevated 40m above the surrounding terrain. The site has an approximately 180° unobstructed view of the surrounding terrain to the north and east. No lakes are visible from the site, but numerous small lakes are located within 1km, the closest of which is 600m to the northeast. Site XMH-1132 is located less than 100m to the east on an adjoining set of moraines. As a result of recent forest fires there is a high degree of surface visibility at the site.

Figure 194. General view of XMH-1131, facing east

Site XMH-1131 consists of three pieces of lithic debitage found on the surface of the moraine. The pieces include one brown chert secondary flake and two black fine-grained basalt tertiary flakes. The artifacts were found within a 15m area on the top of the moraine. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1131 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1132
Determination: Not evaluated
Site XMH-1132 is located at a high point on a glacial moraine. The high point is 20m in diameter and is elevated 50m above the surrounding terrain. The site has an approximately 180° unobstructed view of the surrounding terrain to the north and east. No lakes are visible from the site, but numerous small lakes are located within 1km, the closest of which is 600m to the northeast. Site XMH-1131 is located less than 100m to the west on an adjoining set of moraines. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

Figure 195. General view of XMH-1132, facing west

Site XMH-1132 consists of four pieces of lithic debitage found on the surface of the moraine. The pieces include one large gray chert secondary flake, one large piece of gray-banded chert shatter, and two black fine-grained basalt tertiary flakes. The artifacts were found within a 20m area on the top of the moraine. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1132 has initially been classified as a small lithic scatter that could potentially contain

more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1133

Determination: Not evaluated

Site XMH-1133 is located on a high point of a glacial moraine (Figure 197). The high point is 30m in diameter and is elevated 50m above the surrounding terrain. The site has an approximately 180° unobstructed view of the surrounding terrain to the north and east. No lakes are visible from the site, but numerous small lakes are located within 1km, the closest of which is 500m to the northeast. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

Figure 196. General view of XMH-1133, facing east

Site XMH-1133 consists of two tools and one piece of lithic debitage found on the surface. The tools include a gray chert uniface that measures 39mm in length, 26mm in width, and weighs 7g. The second tool identified at the site is a light gray chert biface that measures 65mm in length, 34mm in width, and weighs 29g (Figure 198). The piece of lithic debitage identified is a gray chert tertiary flake. The artifacts were found within a 10m area on the top of the moraine. Subsurface excavations have yet to be conducted.

Recommendations

Site XMH-1133 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

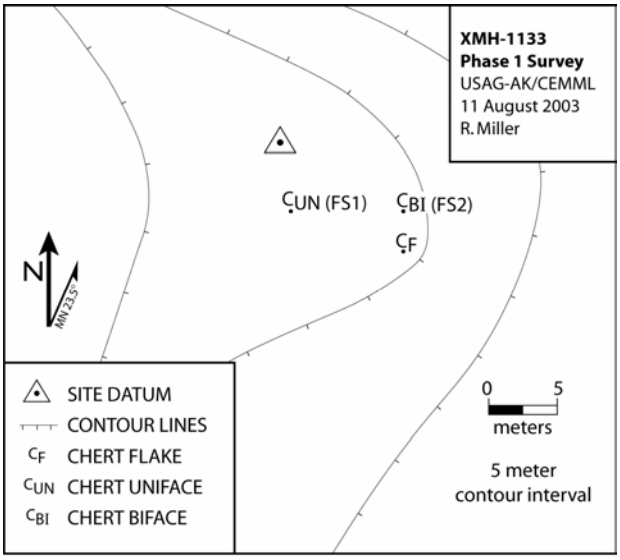

Figure 197. Site map of XMH-1133

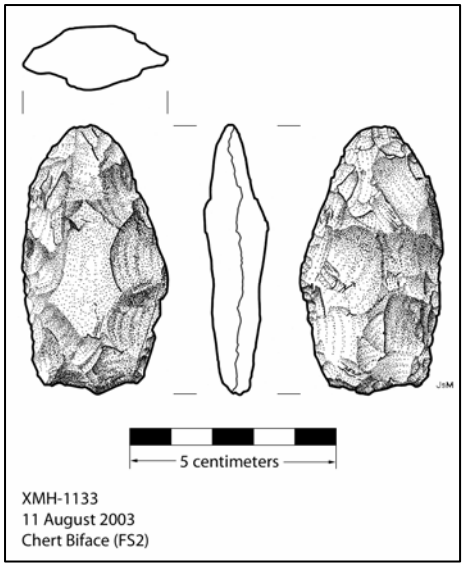

Figure 198. Illustrations of biface from XMH-1133

XMH-1134

Determination: Not evaluated

Site XMH-1134 is located at a high point on a glacial moraine. The high point is 25m in diameter and is elevated 30m above the surrounding terrain. Views are limited to the lower areas west and southwest in the immediate vicinity. No lakes are visible from the site, but numerous small lakes are located within 1km, the closest of which is 200m to the southeast. Sites XMH-1129, XMH-1135 and XMH-1136 are located less than 100m away on an adjoining set of moraines. Due to recent episodes of forest fire the site has a high degree of surface visibility.

Site XMH-1134 consists of three pieces of lithic debitage identified on the surface. These include one piece of quartz shatter, one gray chert secondary flake, and one quartz secondary flake. Subsurface excavations have yet to be conducted.

Figure 199. General view of XMH-1134, facing south

Recommendations

Site XMH-1134 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1135

Determination: Not evaluated

Site XMH-1135 is located at a high point on a glacial moraine. The high point is 25m in diameter and is elevated 30m above the surrounding terrain. Views are limited to the lower areas west and southwest in the immediate vicinity. No lakes are visible from the site, but numerous small lakes are located within 1km, the closest of which is 300m to the southeast. Sites XMH-1129, XMH-1134 and XMH-1136 are located less than 100m away on the adjoining set of moraines. Due to recent episodes of forest fire the site has a high degree of surface visibility.

Site XMH-1135 consists of four pieces of lithic debitage found on the ground surface. The lithic debitage pieces include one quartz secondary flake, one quartz crystal secondary flake and two gray siltstone pieces of a tested cobble. Subsurface excavations have yet to be conducted.

Figure 200. General view of XMH-1135, facing south

Recommendations

Site XMH-1135 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1136
Determination: Not evaluated
Site XMH-1136 is located at a high point on a glacial moraine. The high point is 40m in diameter and is elevated 75m above the surrounding terrain. The site has an approximately 180° unobstructed view of the surrounding terrain to the north. No lakes are visible from the site, but numerous small lakes are located within 1km, the closest of which is 300m to the southeast. Sites XMH-1129, XMH-1134 and XMH-1135 are located less than 100m away on an adjoining set of moraines. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

Figure 201. General view of XMH-1136, facing southwest

Site XMH-1136 consists of three pieces of lithic debitage found on the ground surface. The pieces include two quartz secondary flakes and one quartz tertiary flake. The artifacts were all found within a 20cm area adjacent to a large quartz boulder on the southwest side of the moraine. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1163 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1137
Determination: Not evaluated
Site XMH-1137 is located at a high point on a glacial moraine (Figure 202). The high point is 15m in diameter and is elevated 15m above the surrounding terrain. The site has an approximately 180° unobstructed view of the surrounding terrain to the east. No lakes are visible from the site, but numerous small lakes are located within 1km, the closest of which is 200m to north. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

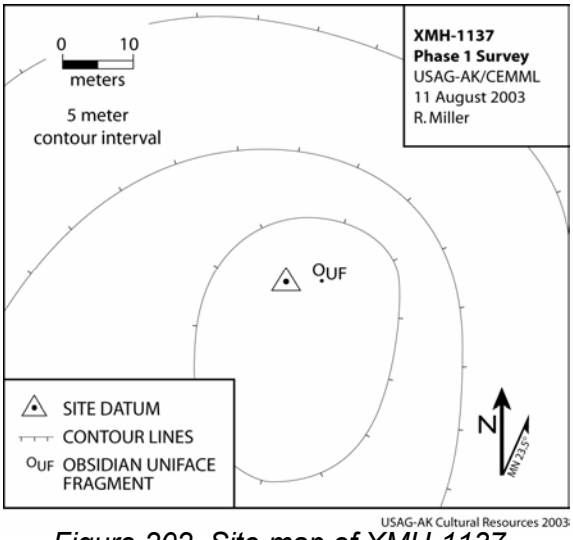

Figure 202. Site map of XMH-1137

Site XMH-1137 consists of one obsidian uniface fragment identified on the ground surface. The fragment measures 23mm in length, 14mm in width, and weighs 1.75g. No other artifacts were identified at the site and subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1137 has been classified as an isolated find, but the site could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Figure 203. General view of XMH-1137, facing northeast

Figure 204. General view of XMH-1138, facing south

XMH-1138
Determination: Not evaluated
Site XMH-1138 is located at a high point on a glacial moraine (Figure 205). The high point is 30m in diameter and is elevated 40m above the surrounding terrain. The site has an approximately 180° unobstructed view of the surrounding terrain to the east towards. No lakes are visible, but several small dry lakes are located within 1km, the closest of which is 500m to the south.

Site XMH-1138 consists of one black fine-grained basalt projectile point midsection fragment and one black fine-grained basalt tertiary flake identified on the ground surface. The projectile point fragment measures 23.5mm in length, 18mm in width, and weighs 2.5g. No other artifacts were identified at the site and subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1138 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

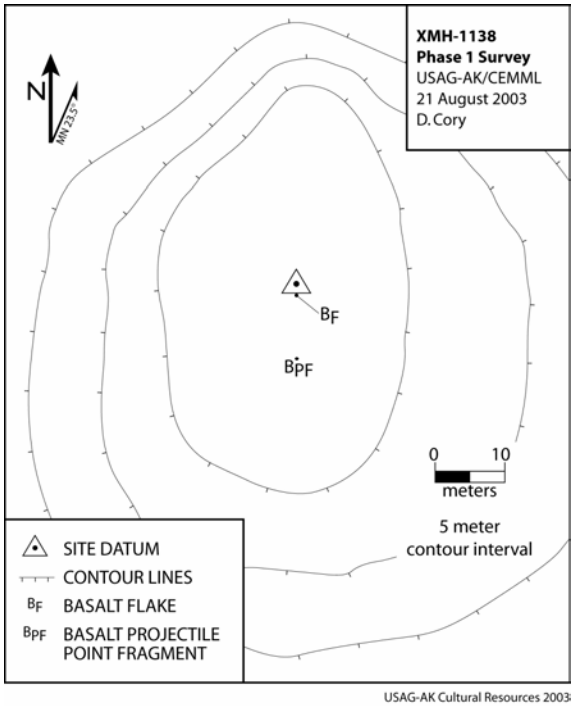

Figure 205. Site map of XMH-1138

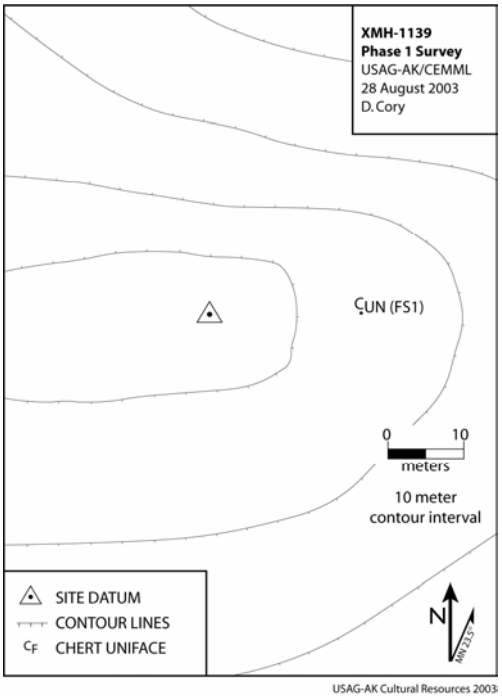

Figure 206. Site map of XMH-1139

<u>*XMH-1139*</u>

Determination: Not evaluated

Site XMH-1139 is located on the side of a glacial moraine (Figure 206). No lakes are visible from this location. The closest water source is a creek approximately 500m to the southeast. Surface visibility is approximately 30 percent.

Site XMH-1139 consists of one large gray banded chert uniface. No shovel testing or excavation was conducted. No other artifacts were identified at the site and subsurface excavations have yet to be conducted.

Figure 207. General view of XMH-1139, facing west

Recommendations

Site XMH-1052 has been classified as an isolated find, but the site could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

<u>XMH-1140</u>

Determination: Not evaluated

Site XMH-1140 is located on a prominent east/west trending ridge. The nearest water source is a very small pond located approximately 400m to the southeast. Two other small ponds are visible 750m to the northeast, and two larger lakes are visible 1.25km to the north. The site has a 360° unobstructed view of the surrounding terrain. The Granite Mountains are visible to the

southeast, Donnelly Dome to the southwest, and the Alaska Range to the west. There is no surface visibility at the site

Figure 208. General view of XMH-1140, facing east

Site XMH-1140 consists of two flakes found during systematic shovel testing. A total of three 30cm x 30cm shovel tests were excavated to glacial till. One positive shovel test contained two tertiary chert flakes at a depth of 20-30cmbs and one tertiary basalt flake at a depth of 35-44cmbs. The shovel test was 50cm deep with six distinct layers; 0-7cm is the organic layer, 7-20cm is a dark yellowish brown loess, 20-27cm is a brown loess, 27-30cm is dark brown loess, 30-44cm is a dark yellowish brown loess, and 44-50cm is glacial till. The artifacts were collected but no density plots were calculated.

Recommendations
Site XMH-1140 has been classified as a buried site that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1141
Determination: Not evaluated
Site XMH-1141 is located on a northwest/southeast trending ridge. The nearest water source is a very small pond located approximately 200m to the northeast. The site has an approximately 180° unobstructed view of the surrounding terrain to the south and west. A lake can be seen 1km to the south. The Granite Mountains are visible to the southeast, Donnelly Dome to the southwest, and the Alaska Range to the west. There is approximately 5-10 percent surface visibility concentrated wholly on the southeast facing slope of the ridge.

Figure 209. General view of XMH-1141, facing east

Site XMH-1141 consists of two flakes found in a shovel test pit. A total of six 30cm x 30cm shovel tests were excavated to glacial till. One positive shovel test contained two chert tertiary flakes at a depth of 5-10cmbs. The shovel test was 45cm deep with five distinct layers; 0-5cm is the organic layer, 5-15cm is a yellowish brown loess, 15-25cm is dark yellowish brown loess, 25-40cm is a strong brown loess, and 40-45cm is glacial till. The artifacts were collected, but no density plots were calculated.

Recommendations
Site XMH-1141 has been classified as a buried site that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of

the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1142

Determination: Not evaluated

Site XMH-1142 is located on a small rise that is approximately 5m in diameter (Figure 211). The site has an approximately 180° unobstructed view of the surrounding terrain to the south and east, and a panoramic view of Granite Mountain to the southeast. To the east of the site is a low, swampy area that contains some small patches of muskeg. The closest water source to the site is a small lake located approximately 1km to the northwest. The ground surface at and around the site is not visible due to vegetation. The majority of the area is covered with sapling birch intermingled with a moderate amount of deadfall. The ground surface was covered with dwarf scrub, moss, and lichen. No obvious subsurface disturbance, either cultural or natural, was noted.

Figure 210. General view of site, XMH-1142 heading south

Site XMH-1142 consists of two flakes found in a shovel test pit. A total of three shovel tests were excavated at the site, one of which yielded cultural materials. Shovel test one yielded two dark gray chert flakes from approximately 6-12cm below the surface. The soil profile encountered in shovel test one consisted of approximately 6cm of dark brown root mat underlain by 16cm of red silt. The red silt was underlain by 16 cm of brown silt which was in turn underlain by 15cm of yellow-orange silt with glacial till. The excavation of shovel tests at the site was ceased upon encountering glacial till. The artifacts collected from the shovel test were collected, but no density plots were calculated for site.

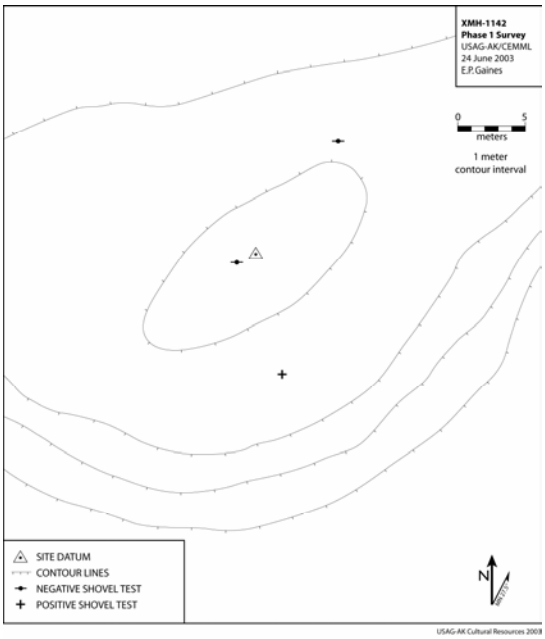

Figure 211. Site map of XMH-1142

Recommendations

Site XMH-1142 has been classified as a buried site that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1143

Determination: Not evaluated

Site XMH-1143 is located on a high point on the east side of a glacial moraine. The nearest water source is a small pond approximately 50m in diameter located approximately 45m to the east. The pond was mostly dry at the time of the survey. The site has an approximately 180° unobstructed view of the surrounding terrain to the south and west. Donnelly Dome and the

Granite Mountains are visible to the south. Due to recent burns, surface visibility is approximately 50 percent.

Site XMH-1143 consists of one basalt tertiary flake and one gray chert tertiary flake found on the surface. No excavations or shovel testing were conducted.

Recommendations
Site XMH-1143 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

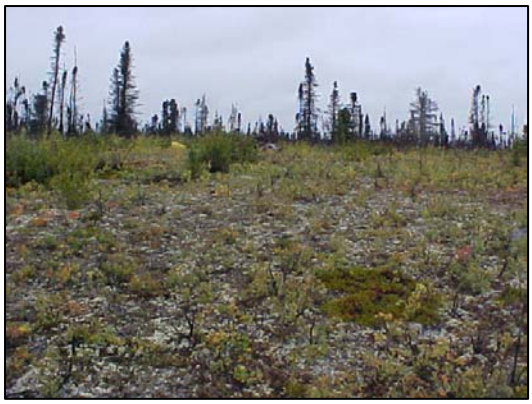

Figure 212. General view of XMH-1143, facing south

XMH-1144
Determination: Not evaluated
Site XMH-1144 lies on top of the tallest glacial moraine in the area (Figure 214). A dry lake was observed approximately 475m to the south. The site has a 360° unobstructed view of the surrounding terrain. Surface visibility is approximately 50 percent. Vegetation on the site consists of moss and low bush cranberry. A two-track road cuts north/south through the site with minimal impact to it. The presence of bullet shell casings indicates some military activity has taken place here in the past.

Figure 213. General view of XMH-1144, facing south

Site XMH-1144 consists of 6 chert flakes and one rhyolite biface blank found on the surface. Three density plots were placed on the site and artifact density is calculated as being up to 1 artifact per-square meter. No artifacts were collected and subsurface examinations have yet to be conducted.

Recommendations
Site XMH-1144 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

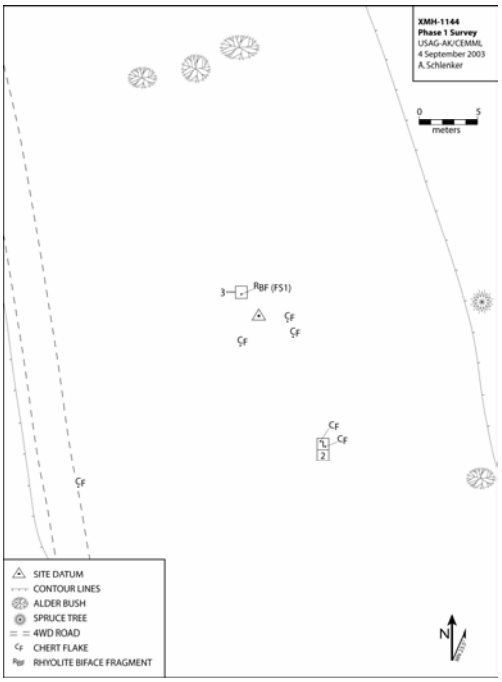

Figure 214. Site map of XMH-1144

Figure 215. General view of XMH-1145, facing north

XMH-1145
Determination: Not evaluated
Site XMH-1145 is located on a high point of a north/south running glacial moraine. A dry lake was observed approximately 200m to the southwest. The site has a 300° unobstructed view of the surrounding terrain to the east, south and west, including Donnelly Dome and the Granite Mountains. To the north, a slightly taller moraine obstructs the view. Due to recent forest fires, there is 60 percent surface visibility at the site. Site disturbance in the form of a road going from north to south, generally following the spine of the moraine, has contributed to some loss of integrity. Numerous military shell casings are present.

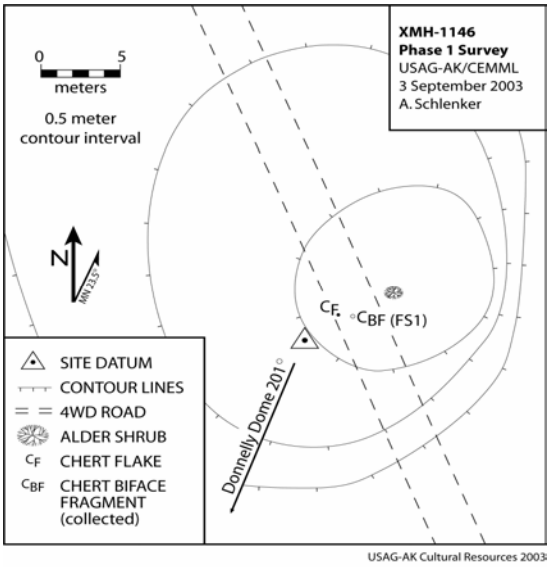

Figure 216. Site map of XMH-1146

Site XMH-1145 consists of one black basalt tertiary flake and two gray chert tertiary flakes located on the ground surface. Site XMH-1146 is located 89m to the south. No shovel testing or excavations were conducted.

Recommendations
Site XMH-1146 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Figure 217. General view of XMH-1146, facing south

XMH-1146
Determination: Not evaluated
Site XMH-1146 is located on a south facing, gradually sloping, glacial moraine (Figure 216). Site XMH-1145 is located approximately 89m to the north. The closest water source is approximately 400m to the southeast. A dry lakebed is present to the southwest at a distance of approximately 100m. The site has a 250° unobstructed view of the surrounding terrain to the east, north and west. The view to the north is obstructed by a slightly taller rise (with site XMH-1145 on it) to the north on the same moraine. Site disturbance in the form of a two-track road that runs north/south through the site has contributed to some loss of site integrity. Ground visibility in the roadway is approximately 80 percent, and off the road visibility is approximately 10-20 percent.

Site XMH-1146 consists of two artifacts observed on the roadway. One bifacial projectile point base and one tertiary flake were located. Both artifacts were made of a black chert. The biface was collected. No shovel testing or excavations were conducted.

Recommendations
Site XMH-1146 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1147
Determination: Not evaluated
Site XMH-1147 is located on top of a small glacial moraine that runs southeast/northwest. A water source was observed approximately 200m to the southwest. The site has an approximately 180° unobstructed view of the surrounding terrain to the east. Recent fires have contributed to approximately 40 percent surface visibility. Site XMH-1147 consists of one gray chert tertiary flake located on the surface. No shovel testing or excavations were conducted.

Recommendations
Site XMH-1147 has been classified as an isolated find, but the site could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1148
Determination: Not evaluated
Site XMH-1148 is located at the top of a moraine. The moraine is elevated 30m above the surrounding terrain. Numerous small moraines surround the site and thus there are no unobstructed views provided from this location. No lakes are visible, but several small lakes are located within 500m, the closest of which is 200m to the east. Due to recent episodes of forest fires, there is a high degree of surface visibility on the top of the moraine.

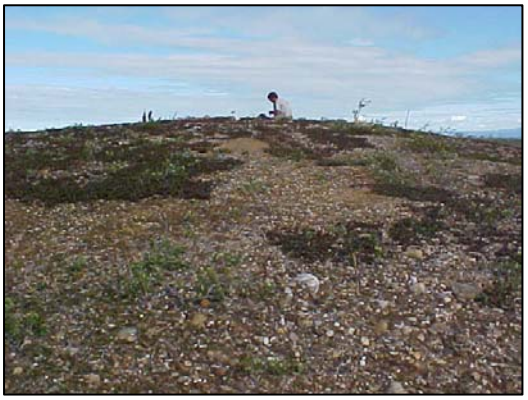

Figure 218. General view of XMH-1148, facing north

Site XMH-1148 consists of four pieces of lithic debitage identified on the ground surface. The pieces include two large gray banded chert secondary flakes that refit, one orange gray siltstone secondary flake, and one orange gray siltstone piece of shatter. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1148 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1149

Determination: Not evaluated

Site XMH-1149 is located at the top of a moraine (Figure 220). The moraine is elevated 25m above the surrounding terrain. A small lake is located 200m away to the northeast. The moraine provides unobstructed views to the lake and beyond, but other moraines obstruct the views in any other direction. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

Figure 219. General view of XMH-1149, facing north

Site XMH-1149 consists of 29 pieces of lithic debitage encountered on the surface of the south and southeast slope of the moraine. One lithic concentration, consisting of 25 flakes within a 1.5m area, was located 10m down slope to the southeast of the top of the moraine. Three other artifacts were observed less than 5m down slope from the artifact concentration and one other was observed 20m to the east.

Materials noted at the site include purple and pink rhyolite, brown rhyolite, gray rhyolite with purple inclusions, and a purple rhyolite with gray inclusions (most likely the same material as the gray rhyolite with purple inclusions). Excluding the brown rhyolite, these materials are like no other materials encountered in the area and unlike the other material types noted for the site.

Tools at the site include two brown rhyolite biface fragments that refit, and a purple rhyolite uniface. The biface fragments include the midsection which measures 19mm in height, 19mm in width, and weighs 1.5g, and the tip which measures 19mm in height, and 9mm in width, and weighs 0.75g. The other tool found at the site is a purple rhyolite uniface that measures 32mm in height, 9mm in width, and weighs 4.2g.

Three density plots were calculated at the site (Figure 221). Subsurface excavations have yet to be conducted.

Recommendations

Site XMH-1149 has initially been classified as a medium sized lithic scatter where both primary and late stage lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

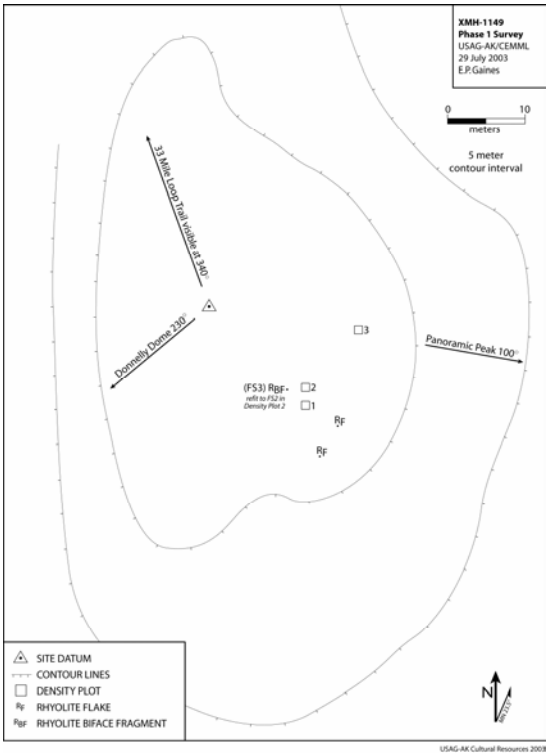

Figure 220. Site map of XMH-1149

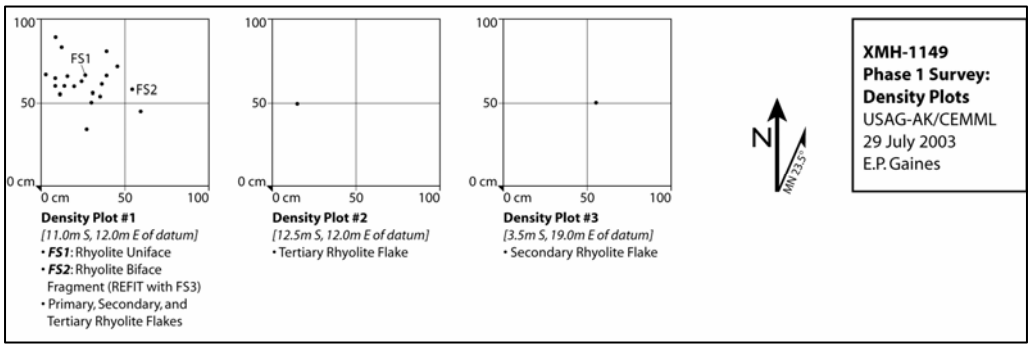

Figure 221. Density plots from XMH-1149

XMH-1150

Determination: Not evaluated

Site XMH-1150 is located at the top of a moraine elevated 40m above the surrounding terrain (Figure 222). The site has an approximately 180° unobstructed view of the surrounding terrain to north and east where a large expanse of flat terrain is located 300m away. No lakes are visible from the site, but numerous small lakes are located within 500m of the site, the closest of which is 200m to the west. Site XMH-1151 is located 100m due east of this site. Due to recent episodes of forest fires, there is a high degree of surface visibility.

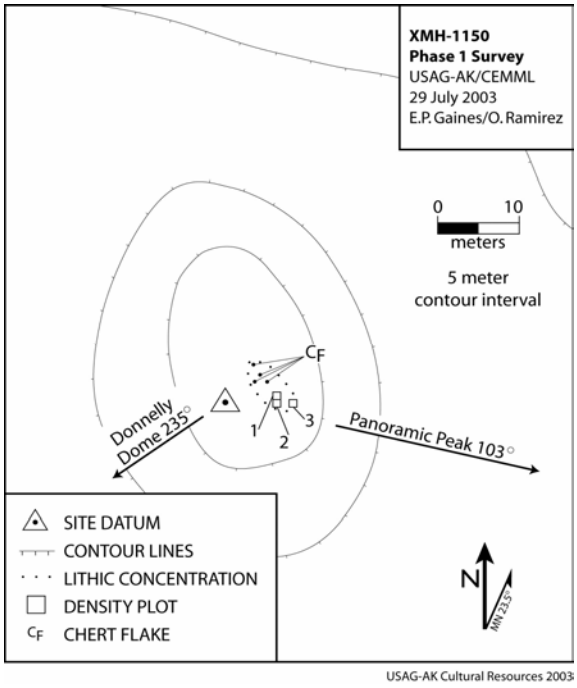

Figure 222. Site map of XMH-1150

Figure 223. General view of XMH-1150, facing south

Site XMH-1150 was first identified by the presence of nine pieces of lithic debitage encountered on the surface of the east slope of the moraine. All were tertiary flakes observed within a 6m diameter area. Materials include gray chert, light gray chert, and black fine-grained basalt. Three density plots were calculated at the site. Subsurface excavations have yet to be conducted.

Recommendations

Site XMH-1150 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the

APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1151

Determination: Not evaluated

Site XMH-1151 is located at the top of a moraine elevated 40m above the surrounding terrain. The site has an approximately 180° unobstructed view of the surrounding terrain to the north and east where a large expanse of flat terrain is located 300m away. No lakes are visible from the site, but numerous small lakes are located within 500m of the site, the closest of which is 300m to the west. Site XMH-1150 is located 100m to the west of this site. Due to recent episodes of forest fires, a high degree of surface visibility was observed on the top of the moraine.

Figure 224. General view of XMH-1151, facing south

Site XMH-1151 consists of three pieces of lithic debitage encountered on the surface of the moraine, all of which were found within a 4m area. The artifacts at the site include 2 gray banded chert tertiary flakes and one light gray chert secondary flake. Subsurface excavations have yet to be conducted.

Recommendations

Site XMH-1151 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1152

Determination: Not evaluated

Site XMH-1152 is located on a small knoll overlooking a lake located 500m to the southeast of the site (Figure 226). The site has a 360° unobstructed view of the surrounding terrain. The Granite Mountains are visible to the southeast, Donnelly Dome to the southwest, and the Alaska Range to the west-southwest. Surface visibility at the site is approximately 20 percent.

Site XMH-1152 consists of five tertiary rhyolite flakes, four tertiary chert flakes, and one rhyolite uniface found on the surface. The uniface is 3.0cm long, 2.5cm wide, and weighs 3g. None of the artifacts found were collected. Three density plots were calculated at the site.

Figure 225. General view of XMH-1152, facing north

Recommendations

Site XMH-1152 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the

APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

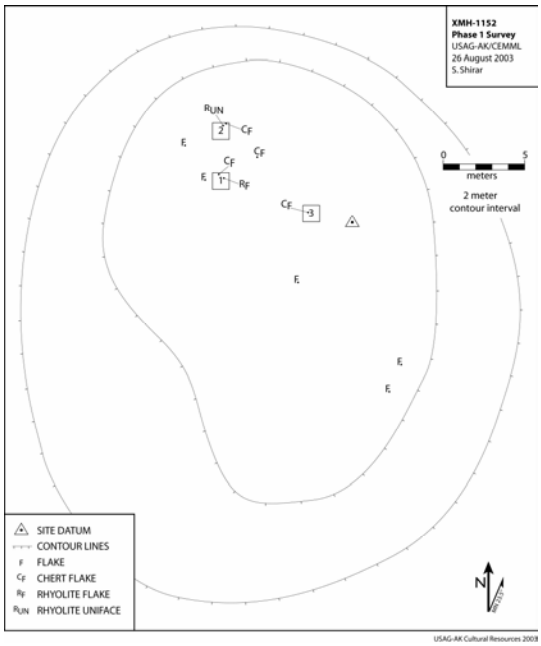

Figure 226. Site map of XMH-1152

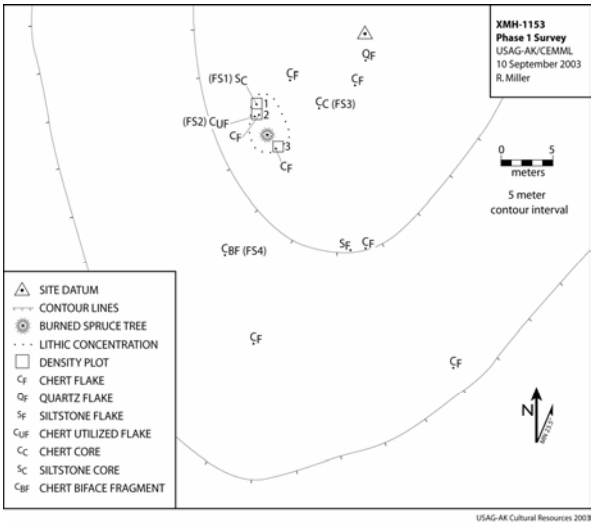

Figure 227. Site map of XMH-1153

XMH-1153

Determination: Not evaluated

The site is located on the top of a high point on a bluff 60m north/south by 40m east/west and is elevated approximately 40m above the surrounding terrain (Figure 227). The high point is a rise on a long (over 2km) northeast/southwest trending bluff that overlooks a creek 500m to the east. A dry lake is located approximately 100m to the west. The site has an approximately 260° unobstructed view of the surrounding terrain to the east, south and west of the site. Due to recent forest fires, there is a high degree of surface visibility.

Site XMH-1153 consists of 11 pieces of lithic debitage, 2 flake cores, and 2 tool fragments observed on the surface (Table 13). Artifacts are located on the top of the bluff and on the southern slope extending 30m down slope. One artifact concentration was observed on the top of the bluff and consists of 5 flakes, a siltstone core and a chert uniface, all within a 10m diameter area. The remaining artifacts were randomly scattered on the high point and on the southern slope. The majority of the flakes (9 of 11) at the site were tertiary flakes with only one secondary flake and one piece of shatter. Materials noted at the site include gray chert, gray banded chert, black chert, dark red chert, brownish gray siltstone, and quartz.

Figure 228. General view of XMH-1153, facing north

Three density plots were calculated at the site. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1153 has initially been classified as a small lithic scatter where later stages of lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Table 13. Lithic tools recorded from XMH-1153

FS#	Artifact type	Material	Color	Length	Width	Weight
FS1	Core	Siltstone	Brownish gray	41mm	36mm	40g
FS2	Uniface	Chert	Black	23mm	8mm	1.25g
FS3	Core	Chert	Gray banded	61mm	29mm	41.75g
FS4	Biface	Chert	Gray	33mm	22mm	4.25g

XMH-1154
Determination: Not evaluated
The site is located on the top of a small knoll or rise (Figure 229). The moraine is 60m north/south by 20m east/west and is elevated approximately 10-15m above the surrounding terrain. It is located 100m west of a long (2km or more) bluff that rises up west of a creek. The terrain surrounding the site is generally flat in the immediate vicinity and to the east, west and south. A dry lakebed is visible less than 100m away. Unobstructed views are provided looking in all directions except south.

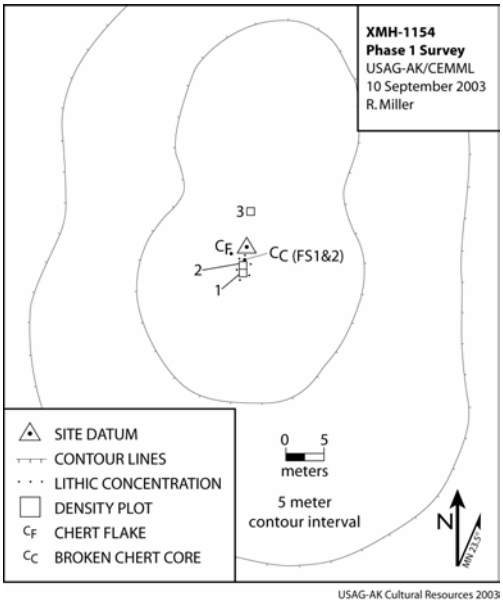

Figure 229. Site map of XMH-1154


Figure 230. General view of XMH-1154, facing south

Site XMH-1154 consists of 17 pieces of lithic debitage and a flake core of a gray banded chert. Over half of the pieces of flaked stone (10 of 17) were secondary flakes. One artifact concentration is located on top of the knoll. The artifact concentration consists of 14 flakes and a flake core within a 3m area. The core is an expedient core that has been broken in two pieces,

both of which were found lying adjacent to one another. One piece measures 84mm in length, 24mm in width, and weighs 47g. The other measures 89mm in length, 11mm in width, and weighs 29.5g.

Three density plots were calculated at the site (Figure 231). Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1154 has initially been classified as a small lithic scatter where early stages of lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

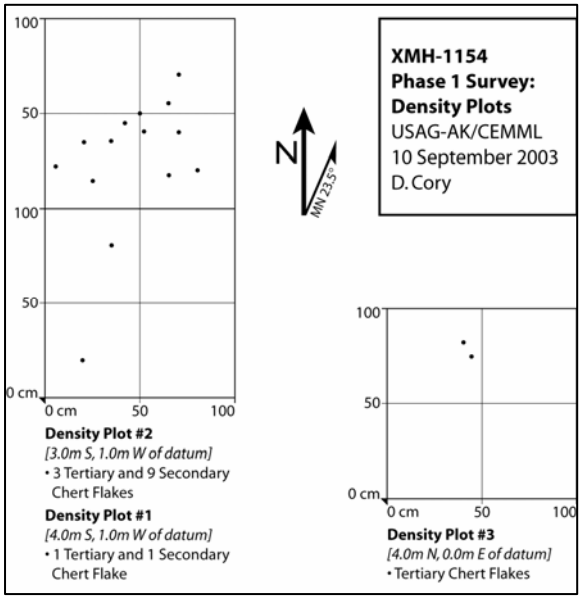

Figure 231. Density plots from XMH-1154

<u>XMH-1155</u>
Determination: Not evaluated
The site is located on the slope of a long (over 2km) northeast/southwest trending bluff that overlooks a creek 500m to the east (Figure 232). The surrounding terrain east and south of the site is generally flat towards the creek, and unobstructed views are provided looking in those directions. Due to recent episodes of forest fires, there is a high degree of surface visibility. The ground surface has also been exposed by a road cut that extends through the site.

Site XMH-1155 consists of five pieces of lithic debitage and seven uniface fragments that refit into two separate unifaces. Three uniface fragments found adjacent to one another refit into one uniface of green chert. Four other uniface fragments, found within a 10cm area, come from another single uniface of fine grained basalt (two of which refit). Five pieces of flaked stone were observed at the site and include a gray banded chert secondary flake, 2 gray banded chert tertiary flakes, an obsidian tertiary flake, and a piece of gray banded chert shatter (Table 14).

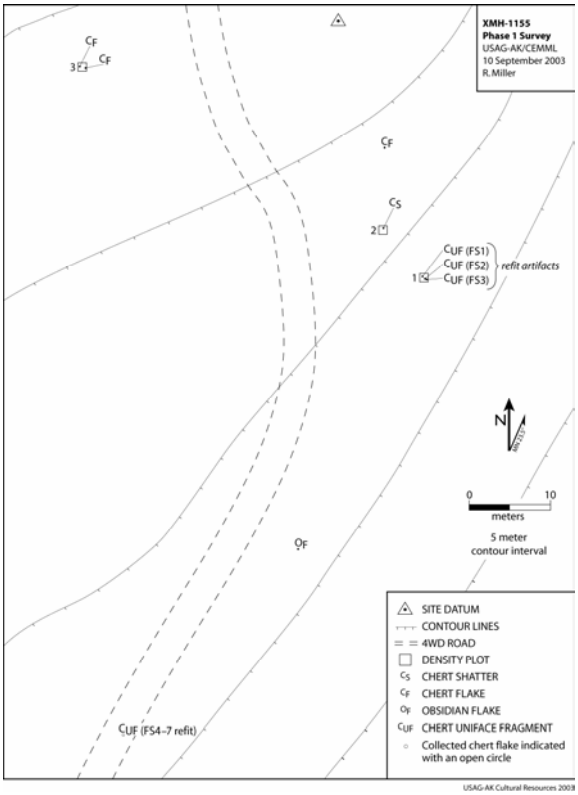

Figure 232. Site map of XMH-1155

Three density plots were calculated at the site (Figure 233). Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1155 has initially been classified as a

small lithic scatter where late stage lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

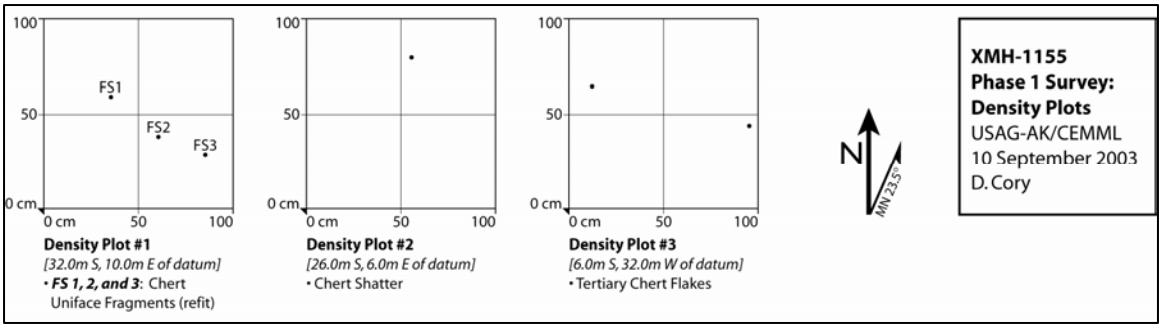

Figure 233. Density plots from XMH-1155

Table 14. Lithic tools recorded at XMH-1155

FS#	Artifact type	Material	Color	Length	Width	Weight
FS1	Uniface frag.	chert	green	28mm	22mm	7g
FS2	Uniface frag.	chert	green	20mm	11mm	3.25g
FS3	Uniface frag.	chert	green	22mm	20mm	3g
FS4	Uniface frag.	basalt	black	22mm	12.6mm	2g
FS5	Uniface frag.	basalt	black	11.5mm	7.7mm	1g
FS6	Uniface frag.	basalt	black	16.7mm	9.5mm	1g
FS7	Uniface frag.	basalt	black	11.7mm	7.8mm	1g

Figure 234. General view of XMH-1155, facing north

Figure 235. General view of XMH-1156, facing north

XMH-1156

Determination: Not evaluated

This site is located on a rise of a larger ridge (Figure 237). The rise is part of a long (over 2km) southwest/ northeast trending ridge that is elevated over 100m above the generally flat terrain to the east. A creek is approximately 500m away. Due to recent episodes of forest fires and wind erosion, there is a high degree of surface visibility at the site.

Site XMH-1156 consists of 37 pieces of lithic debitage found on the surface of the site. One artifact concentration consists of 26 flakes found within a 3m area.

Recommendations

Site XMH-1156 has initially been classified as a small lithic scatter where late stage lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Figure 236. General view of XMH-1157, facing south

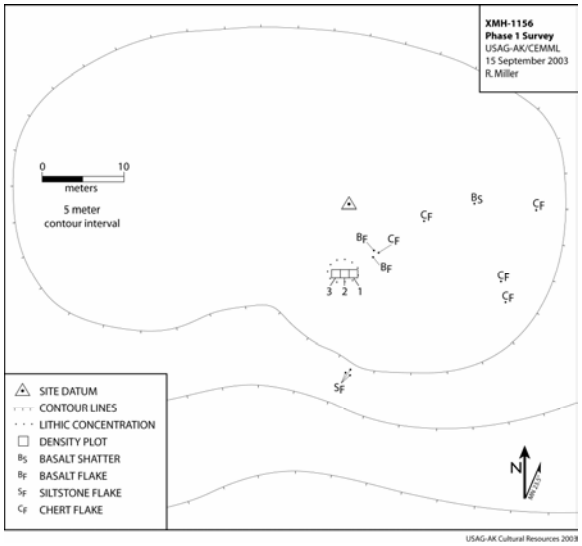

Figure 237. Site map of XMH-1156

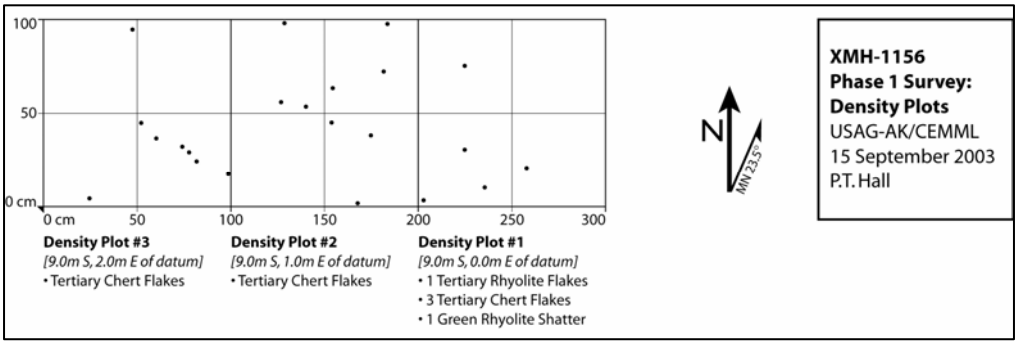

Figure 238. Density plots from XMH-1156

XMH-1157

Determination: Not evaluated

The site is located on a rise of a larger ridge. The rise is part of a long (over 2km) southwest/northeast trending ridge that is elevated over 100m above the generally flat terrain to the east. A creek is located approximately 500m away to the east. Due to recent episodes of forest fires, there is a high degree of surface visibility at the site.

Figure 239. General view of XMH-1159, facing south

Site XMH-1157 consists of 6 pieces of lithic debitage found within an 8m diameter area on top of the rise. The pieces include one white chert tertiary flake, 4 gray chert tertiary flakes, and one gray chert utilized/retouched flake. The utilized/retouched flake measures 23mm in length, 15mm in width, and weighs 6.75g.

Three density plots were calculated at the site. Subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1157 has initially been classified as a small lithic scatter where both primary and late stage lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1158
Determination: Not evaluated
The site is located on a rise of a larger ridge. The rise is part of a long (over 2km) southwest/northeast trending ridge that is elevated over 100m above the generally flat terrain to the east. A creek is located approximately 500m away to the east. Due to recent episodes of forest fires, there is a high degree of surface visibility at the site.

Site XMH-1158 consists of 3 pieces of lithic debitage found on the southeast slope of the rise. The pieces include one chert tertiary flake, one basalt tertiary flake, and one quartz tertiary flake. No density plots were calculated and subsurface excavations have yet to be conducted.

Figure 240. General view of XMH-1158, facing south

Recommendations
Site XMH-1158 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1159
Determination: Not evaluated
The site is located on a rise of a larger ridge. The rise is part of a long (over 2km) southwest/northeast trending ridge that is elevated over 100m above the generally flat terrain to the east. There is also a creek approximately 500m to the east. Due to recent episodes of forest fires, the site has a high degree of surface visibility.

Site XMH-1159 consists of two gray banded chert tertiary flakes found on the east slope of the rise. No density plots were calculated and subsurface excavations have yet to be conducted.

Recommendations
Site XMH-1159 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Figure 241. General view of XMH-1159, facing south

XMH-1160
Determination: Not evaluated
Site XMH-1160 is located on a high point of an east/west trending glacial moraine ridge. 33 Mile Loop Trail also runs the length of this ridge (Figure 243). The site is approximately 100m west of a small unnamed pond and 300m northwest of larger lake. The site consists of one obsidian microblade and one piece of chert shatter observed on the surface of 33 Mile Loop Trail. Subsurface examinations have yet to be conducted.

Recommendations
Site XMH-1160 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

Figure 242. General view of XMH-1160, facing south

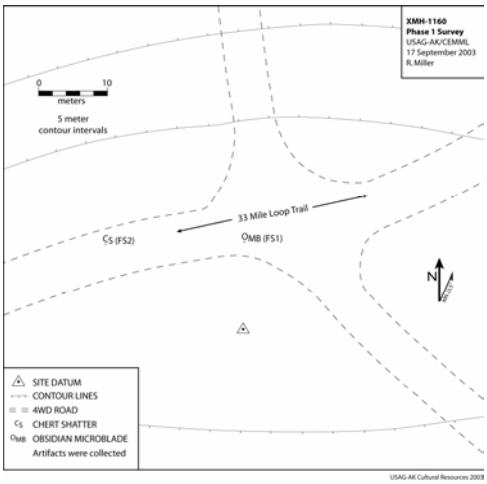

Figure 243. Site map of XMH-1160

XMH-1161
Determination: Not evaluated
Site XMH-1161 is located on the east facing, rising slope of a moraine. Two lakes are located 200m to the west, but are not visible from the site. 33 Mile Loop Trail crosses the site, and a flake was found on its surface. Surface examinations and subsurface testing in the immediate

area yielded no additional artifacts. The area has been only slightly disturbed by wind erosion, and thus a limited amount of surface visibility was observed.

Site XMH-1161 consists of a single black basalt broken flake that was found on the road surface of 33 Mile Loop Trail. This single artifact was collected due to its location on the road surface and probability that it would be impacted by vehicle traffic.

Recommendations
Site XMH-1161 has initially been classified as a small lithic scatter that could potentially contain more cultural material. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

XMH-1162
Determination: Not evaluated
Site XMH-1162 is located on the south end of a glacial moraine that is elevated approximately 5-6m above a wetland to the northeast (Figure 245). Water is available approximately 150m to the northeast. Surface visibility is approximately 35 percent. Site disturbance consists of military shell casings, live blank cartridges and a fire that left numerous burned standing black spruce.

Site XMH-1162 consists of 14 gray chert flakes, 1 quartz flake, and 1 salt and pepper chert flake. A large flat expanse, adjacent to the site to the northwest is a likely location for site expansion. Three density plots were calculated (Figure 246), but no subsurface testing was conducted.

Figure 244. General view of XMH-1162, facing northeast

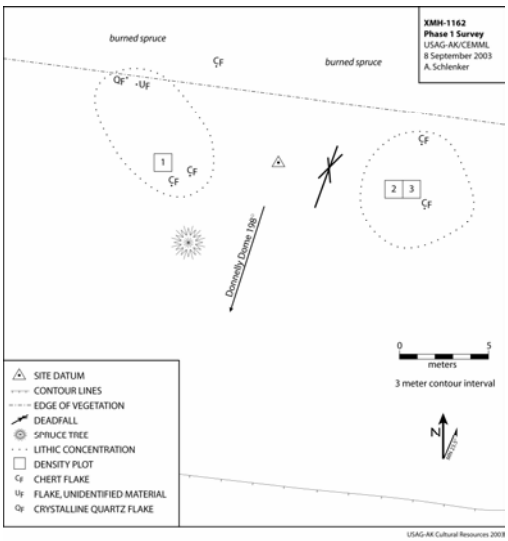

Figure 245. Site map of XMH-1162

Recommendations
Site XMH-1162 has initially been classified as a small lithic scatter where later stages of lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

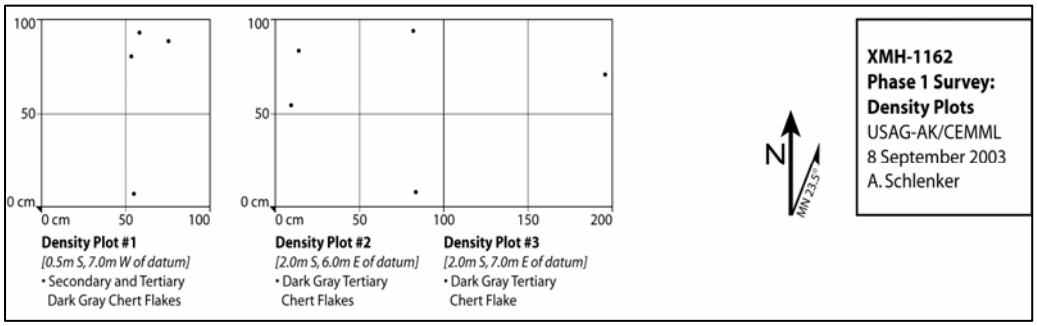

Figure 246. Density plots from XMH-1162

XMH-1163

Determination: Not evaluated

Site XMH-1163 is located on the south end of a large glacial moraine which runs southwest/ northeast (Figure 248). The site is located approximately 15m above a large flat expanse of burned spruce forest to the south and east. The south slope is extremely steep, causing the top of it to slough off and erode quickly. A dry lakebed was observed approximately 50m to the west. Donnelly Dome is visible to the southwest. Surface visibility is poor on top and moderate on the south slope. There is some site disturbance in the form of a game trail that runs along the top of the south slope. The south slope is eroding and exposing artifacts. It is highly likely the site continues on top of moraine.

Site XMH-1163 consists of the 11 flakes found on the surface of the site including, one black chert flake, one basalt flake, and nine rhyolite flakes. No shovel testing or excavations were conducted. Three density plots were calculated at the site (Figure 247).

Recommendations

Site XMH-1163 has initially been classified as a small lithic scatter where later stages of lithic reduction occurred. This site lies inside the boundaries of one of three firing fan alternatives for the proposed BAX project. It was not, however, evaluated at this time. If the site falls into the APE of the chosen firing fan alternative, the site should be evaluated to determine eligibility for inclusion in the NRHP.

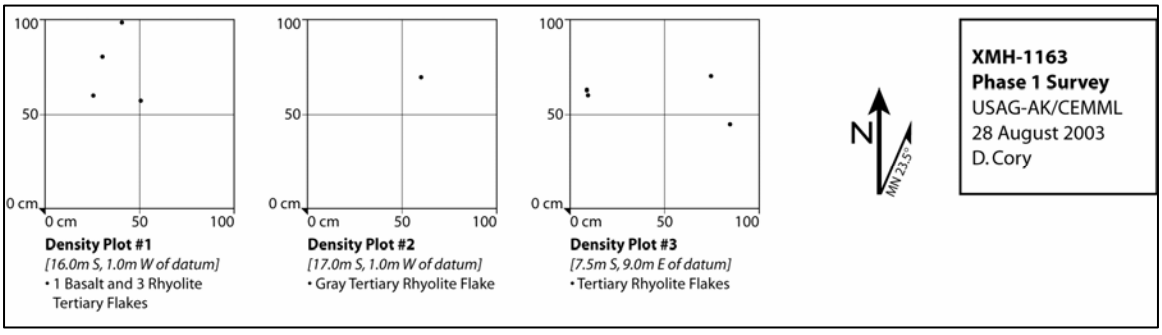

Figure 247. Density plots from XMH-1163

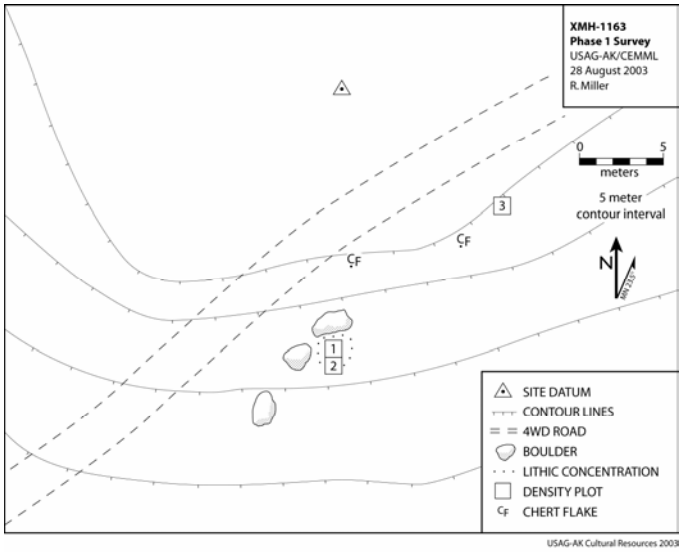

Figure 248. Site map of XMH-1163

4.6 Erosion control and bridge replacement at the Northwest Training Center Rock (NWTC) Climbing Site, Fort Wainwright, Black Rapids Training Area

USAG-AK has proposed an erosion control and bridge replacement project at the Northwest Training Rock Climbing site, located within Army lands, south of Ft. Wainwright's Donnelly Training Area at Black Rapids Training Area (Figure 249). The project involves stream bank stabilization at Terry Creek and Fall Creek, east of the Richardson Highway, and the placement of riprap and fill material. Additionally, the existing footbridge at Fall Creek is in poor condition and will be replaced in-kind.

Stream bank stabilization and erosion control would occur at both Terry and Fall Creeks, with the footbridge at Fall Creek also being replaced. All equipment used in the stabilization and pedestrian footbridge replacement will utilize existing roads paralleling each creek.

Survey and Field Methods

In the summer of 2003 an archaeological survey crew (comprised of five archaeologists) employed by CEMML conducted a pedestrian survey of the proposed stream bank stabilization and bridge replacement projects at Ft. Wainwright's Black Rapids Training Area.

The project's APE encompassed an area larger than the anticipated construction footprint, in order to ensure coverage of areas that may incur secondary impacts during construction or use. All of the area shown in red was surveyed in the summer of 2003 (Figure 249).

Parallel pedestrian transects spaced at 20m intervals were walked systematically across the APE and surrounding area. Systematic sub-surface shovel testing was done throughout the APE and shovel tests were typically 30cm x 30cm and excavated into glacial till or consolidated outwash. All soil removed was screened through ¼" hardware cloth.

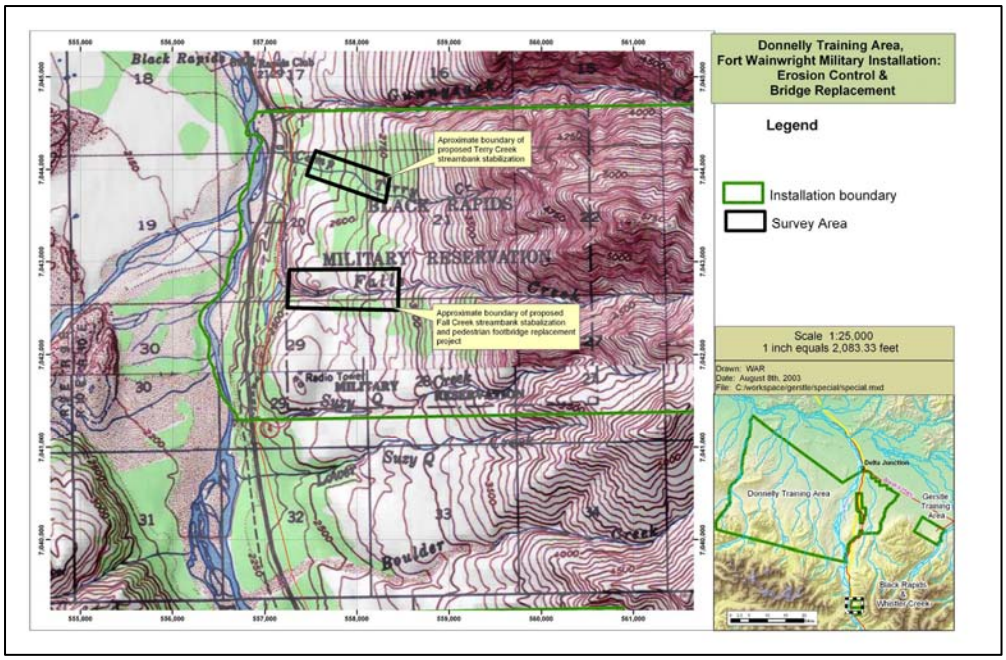

Figure 249. Location of Terry and Fall Creeks proposed project area

Results
Pedestrian survey of the project area failed to identify any cultural resources within the boundaries of the proposed project's area of potential effect. The proposed stabilization work will be conducted on existing roads that parallel the creek banks and no impacts outside of the immediate stream banks or existing roads will occur. The proposed project will have no effect on historic properties.

Cultural Resources
Five historic and prehistoric sites have been recorded in the vicinity of the proposed project areas. To the south of Fall Creek, two prehistoric sites were recorded by Bacon and Holmes (1980: 95, 41-45): Site XMH-317 is a small lithic scatter comprised of ten chert waste flakes, observed on the down slope of a small outcrop. At XMH-318, a retouched flake and single waste flake were observed on a steep slope. Neither of these locations has been evaluated to determine the extent of sub-surface material or eligibility for listing in the National Register of Historic Places. Both of these sites fall outside of the proposed project's area of potential effect and will not be impacted.

Site XMH-392, near the crossing of Camp Terry Creek and the Richardson Highway, is the location of a Black Rapids White Alice Communication System (WACS). The Black Rapids WACS was opened in 1960 and provided TD-2 microwave communication between the Donnelly Dome WACS (19mi north) and the McCallum WACS (20mi south). Facilities at the repeater station included a 1560 square foot radio relay building, a 722ft chain link security fence, 2500 gallons of underground storage, and a TD-2 tower. The station was declared excess in 1979, and was subsequently purchased by Alascom in 1984. As of 1988, the site was maintained and continued to be in use. The site was determined eligible for listing in the National Register in 1988 (Reynolds 1988: 60).

Site XMH-221, located north of Camp Terry Creek is a thin scatter of flakes that were surface collected at the time of survey (Cook 1976c: 4). Exploratory testing failed to recover additional material, and subsequently the site was determined not eligible for listing in the National Register (Cook 1976c: 4).

The fifth known site recorded near the project area is the Black Rapids Roadhouse/Hunting Lodge, XMH-223. The original roadhouse consisted of a 2-story log constructed building. Single story log additions were constructed on the north, south and east sides, creating an L-shaped configuration. Both the north and south additions have metal covered gable roofs, running perpendicular to the original construction. The east addition contains three additional rooms. The Black Rapids roadhouse is one of a few remaining roadhouses that operated along the Valdez-Fairbanks trail, (now the Richardson Highway) between 1904 and 1923. Originally there were more than 30 roadhouses, which were linked by one day's travel between them (Phillips 1984: 56; Smith 1974: 23, 94-95). This site was determined eligible for listing in the National Register of Historic Places, and listed in February 2001. The Black Rapids Roadhouse falls outside of the proposed project's area of potential effect.

Pedestrian Bridge
The Falls Creek bridge was originally built in the 1960s, although no specific records regarding a construction date are available. The bridge was then replaced in the 1970s using the original bridge design and construction footprint. Both the original bridge construction and bridge replacement were carried out by Army engineers, but no specific records documenting the bridge design or construction exist.

This bridge provided troop access to training lands. Training activities conducted at Fort Wainwright during the Cold War era does not achieve the criteria of "exceptional importance." Training activities represented here include Garrison training, which consisted of training to obtain combat readiness, an activity common to all installations. For training facilities less then 50 years old to achieve "exceptional importance," it is necessary to document that new training or combat doctrine was developed at the facility that has importance in directing how the Army approached training or combat Department wide. No new training or combat doctrine was developed at Fort Wainwright. It followed training doctrine established elsewhere.

Figure 250. Pedestrian bridge at Fall Creek, to be replaced in kind

Based on National Register criteria, the bridge is not eligible for listing in the National Register of Historic Places: the original structure has been replaced, and is less than 50 years old. The bridge is not an example of a distinctive design; and does not hold a significant association with a specific event or person. Subsequently, the bridge is not considered a 'historic property,' for purposes of Section 106 review.